Polyrhythm as an Integral Feature of African Pianism:
Analysis of Piano Works by Akin Euba, Gyorgy Ligeti & Joshua Uzoigwe
and
Àjùlọ Kìnìún
(Original Composition)

by

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Akin Euba (b.1935), Gyorgy Ligeti (1923 – 2006) and Joshua Uzoigwe (1946 – 2005) are three art music composers with different approaches to intercultural musical composition. However, representative piano works - *Themes from Chaka I* by Euba (1996), *Fanfares* by Ligeti (1985) and *Ukom* (Talking Drums for Piano Solo Op.11) by Uzoigwe (c.1991) - can be placed on the same stage in their use of processes and resources germane to African traditional music. Specifically, polyrhythm invoking African rhythms is a stylistic resource common to all three of these works. Furthermore, the three composers make the piano simulate African traditional instruments whilst invoking the aesthetics of African traditional music in rhythm and texture. It is my thesis that the occurrence of polyrhythm in the three piano works goes beyond the realm of stylistic usage but functions on a structural level. Thus, the focus of my study is how polyrhythm, functioning at various structural levels and yielding larger rhythmic consequences, is used as a compositional tool to define musical coherence. Using Simha Arom's discussion on polyrhythm (African Polyphony and Polyrhythm, Cambridge University Press, 1985) as a basis, I develop a method to evaluate the polyrhythmic component of the three piano pieces.

The composition component of my dissertation is *Àjùlọ Kìnìún* for *Yorùbá* talking drum, voice, piano, flute, *àkúbà* drums and percussion (temple blocks, *agogo* and *sèkèrè*). In this work, I explore the speech and rhythm capabilities of the *Yorùbá* talking drum as used in the *Yorùbá*

dùndún instrumental genre. I also explore the musicality of the *Yorùbá* language, based on three tone levels, through the traditional vocal style that fluctuates between the "speech-chant-song" continuum. I advance the concept of African Pianism by making the piano further behave like the talking drum with regards to pitch, with the approximation of the system of three tone levels of the spoken *Yorùbá* language, which forms the basis of the *Yorùbá* talking drum repertoire.

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PREFACE

I dedicate this dissertation to my professors: Dr. Akin Euba, Dr. Don Franklin, Dr. Eric Moe, Dr. Mathew Rosenblum, Dr. Amy Williams and Roger Zahab. I am most grateful to you all for nurturing my academic growth at the University of Pittsburgh. Thanks ever so much for your support and encouragement at all times. Your immense contributions to the pathway my life and career will take cannot be over emphasized.

1.0 INTRODUCTION

In describing a style of composition which reflects his African cultural and musical background, Euba[1] has coined the term African Pianism, a conceptualization of the percussive use of the piano in a particular manner so as to 1) invoke a symbolic representation of African musical textures and 2) to express the rhythmical and textural components of traditional African music without actually using traditional instruments. Since polyrhythm is a principal feature of traditional music in different parts of Africa, it can be considered an integral feature of African Pianism. In his study of the traditional music of Central African Republic, Arom[2] observes that African polyrhythm is made up of cross-rhythms, that is, of different independent/conflicting rhythmic patterns superimposed upon one another. He further notes that, "the principle of cross-rhythm involves the combination of two or more rhythmic figures in such a way that they cross rather than coincide with one another. There are nonetheless moments when the different figures correspond, but the overall ostinato pattern that is created emphasizes their points of divergence or their oppositions rather than their points of connection." While Euba[3] acknowledges that polyrhythm is an ingredient of much polyphonic music with notable examples found in the works of Palestrina and J.S. Bach, he asserts that African polyrhythm, an important feature of

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[1] Akin Euba, introduction to *Towards an African Pianism: Keyboard Music of Africa and the Diaspora* Vol.1, ed. Cynthia Kimberlin and Akin Euba (California: MRI Press, 2005), 1.
[2] Simha Arom, *African Polyphony and Polyrhythm* (Cambridge, UK: Cambridge University Press, 1985), 42.
[3] Akin Euba, preface to *Study in Polyrhythm No.2* (Unpublished score, 2005), 1.

traditional music in sub-Saharan Africa, is marked by extended repetition. He further states, "…good polyrhythm means that there is a fine balance between the coincidences and non-coincidences of the points of attack in the various parts that form the polyrhythmic structure."

In discussing polyrhythm as a feature of African Pianism, it is necessary to put it within the context of the defining characteristics of African traditional rhythms and how time is generally organized. Nketia[4] observes that African rhythms are generally conceived of either as syllabic rhythms reflecting those of songs, or as abstract rhythm patterns. These rhythms may be metrically free and lacking in rhythmic regularity, or they may be in strict time. Isoperiodicity usually accompanies rhythmic regularity: time is organized based on the repetition of similar rhythmic figures that can be subject to variation. Further investigation into the periodic structure of African rhythms reveals the presence of a basic isochronous pulse as the point of temporal reference, and the absence of strong and weak beats as found in the metric system of Western art music. Arom[5] says there are no regular accentual matrices. The pulsations or beats on which the period is based all have similar hierarchical status.

African polyrhythmic structures exist within the boundaries of the defining characteristics of African rhythms (discussed above). Of crucial importance is the nature of the constituent rhythmic patterns of an African polyrhythmic structure as well as how the patterns are arranged within the structure. Using Kolinski's terms[6], African rhythmic patterns are usually more contrametric than commetric[7] while having a regular temporal reference (pulsation) and usually displaying internal asymmetries. In terms of arrangement, the patterns, functioning within an

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[4] J.H. Kwabena Nketia, *The Music of Africa* (London,UK: W.W. Norton & Company, 1974), 125.
[5] Arom, *African Polyphony and Polyrhythm*, 211.
[6] Mieczyslaw Kolinski, "A Cross-Cultural Approach to Metro-Rhythmic Patterns," *Ethnomusicology* XVII/3 (1973): 498 – 500.
[7] Attacks generally coincide with the pulsation in a commetric rhythmic organization while they conflict in contrametric organization.

unchanging periodicity, usually interlock thus resulting in cross-rhythms as stated earlier. Furthermore, the constituent rhythmic patterns of an African polyrhythmic structure usually function within the principle of ostinato and variations. The ostinato is usually the repetition of a rhythmic figure, which is short in length (Polyrhythm can also arise from multi-ostinato – the contrapuntal existence of two or more ostinatos). Further, in terms of periodicity, Nketia[8] notes that the interrelationship of rhythmic patterns or phrases in strict time is controlled by relating them to a fixed time span. He[9] further adds that the length of rhythmic phrases is not always confined to the boundaries of the time span, but may be shorter or longer. Arom[10] makes it clear that the superposed rhythmic figures in a polyrhythmic context are of varying lengths, yet always stand in simple ratios to one another, such as 2:1, 3:1, 3:2, 4:2, and multiples thereof. Arom thus defines a macroperiod as a cycle obtained when periods of different lengths are superposed, and each individually is shorter, for example:

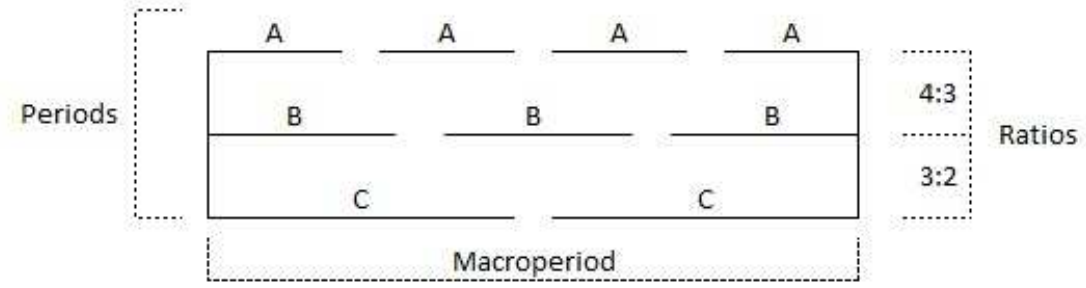

Figure 1: Periodicity

[8] Nketia, *The Music of Africa,*126.
[9] Ibid.,131.
[10] Arom, *African Polyphony and Polyrhythm*, 233.

Polyrhythm invoking Africa rhythms has been a compositional resource for many art music composers. My dissertation investigates the occurrence of polyrhythm, an integral feature of African Pianism, as a structural component yielding different compositional results in the following piano works:

- *Fanfares* (1985)[11] by Gyorgy Ligeti (1923 – 2006)
- *Themes from Chaka I* (1996)[12] by Akin Euba (b.1935)
- *Ukom* (c.1991)[13] by Joshua Uzoigwe (1946 – 2005)

While the three works are unified in their use of polyrhythm and other resources apropos of African traditional music, it should be noted that Ligeti never claimed *Fanfares* to be a composition based on African Pianism or the equivalent. However, the stylistic ingredients of African Pianism as defined by Akin Euba[14] are present in this work. I therefore put it in the same category as *Ukom*, which Uzoigwe composed (with four other piano works) as part of "Studies in African Pianism IV" and *Themes from Chaka I,* which Euba published in *Towards an African Pianism: Keyboard Music of Africa and the Diaspora*.

To examine the polyrhythmic structure of the three piano works under study, I developed a methodology based on a quantitative analytical technique. The methodology and definitions of terms are presented in Chapter 2. I provide the background to the three pieces under examination in Chapter 3. The analyses of the piano pieces follow in Chapter 4. The study is concluded in Chapter 5.

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[11] Published in *Etudes pour Piano, Premier Livre* (Mainz: Schott Musik International, 1985), 26-36.
[12] Published in *Towards an African Pianism: Keyboard Music of Africa and the Diaspora* Vol. 2, ed. Cynthia Kimberlin and Akin Euba (California: MRI Press, 2005), 253-274.
[13] First published in *Studies in African Pianism IV: Talking Drums for Piano Solo Op 11* (Yaba, Nigeria: Mgbo Music, 1999), 4-14. More recently published in *Piano Music of Africa and the African Diaspora* Vol.4, ed. William H. Chapman Nyaho (New York: Oxford University Press, 2009), 9 – 20.
[14] Euba, introduction, 1.

Euba, Ligeti and Uzoigwe are three art music composers with different stylistic and intercultural methodologies. This comparative study of their piano works sheds light on their individual perceptions and use of African musical processes and resources. This thus adds to the body of analytical studies that seek to investigate the different ways that African and Western musical elements can be integrated within the context of art music composition. With a paucity of research study into the works of Euba and Uzoigwe, this essay stands to provide an insight into one important aspect of their works.

2.0 METHODOLOGY

A detailed and valuable contribution to the literature of African music is that of Simha Arom.[15] For this dissertation, his approach to the study of polyrhythm in the music of Central African Republic serves as the basis of the methodology that I developed for the study of the same subject (polyrhythm). In the following sections, I summarize the aspects of Arom's discussion relevant to my scholarship and its application as the basis of my definitions and methodology. This is followed by the definition of terms and a description of my methodology.

2.1 BASIS OF METHODOLOGY

2.1.1 Summary of Arom's Study

Arom (1985: 180) describes the rhythmic commonality between traditional African music and Western Medieval music in terms of the temporal reference unit:

> "At the time of the *ars nova*...the notion of measure as it is understood today was still unknown. All extant texts concord in showing that there was nothing but a temporal reference unit which synchronized the parts during performance and indicated tempo as well. This unit…was called the *tactus*…The arrangement of

[15] Arom, *African Polyphony and Polyrhythm*, 1-668.

> durations in most African music is still based on the same principle as the medieval *tactus*. No use whatsoever is made of the notion of matrices of regular contrasts of strong and weak beats. African music is thus based, not on measures in the sense of classical musical teaching, but on *pulsations*, i.e. on a sequence of isochronous temporal units which can be materialized as a beat."

Arom explains that grouping beats into measures only became possible when the notion of the 'measure' as a graphic notation invaded musical instruction in the course of the 17th century. Even today, this notion, which arose out of a mere graphic convention, continues to exercise a decisive influence on Western art music.

Further, regarding terms relating to temporal organization, Arom[16] claims that the terms listed under Group A (Table 1 below) feature frequently in the literature for African music:

Table 1: Terms relating to temporal organization

GROUP A	GROUP B	GROUP C
Rhythm or rhythmic		Rhythm or rhythmic
Accent		Accent
Metric, metre, measure	Metric, meter, measure	
Stress, weight	Stress, weight	
Strong beat, main beat, weak beat	Strong beat, main beat, weak beat	
Syncopation	Syncopation	
Beat, pulse, clap		Beat, pulse, clap
Isometric, heterometric, polymetric	Isometric, heterometric, polymetric	
Isorhythmic, heterorhythmic, polyrhythmic		Isorhythmic, heterorhythmic, polyrhythmic
Additive and divisive rhythms	Additive and divisive rhythms	
pattern		pattern

[16] Arom, *African Polyphony and Polyrhythm*, 182.

He argues that all these terms are taken from the vocabulary ordinarily used to describe Western music. However for the fact that the absence of regular accents is one essential feature of most traditional African music, all the terms in Group B (Table 1 above) implying a contrast between strong and weak beats should thus be excluded from the vocabulary applied to such music. Consequently, the description of rhythmic phenomena in music with no regular stress should limit itself to the use of the terms under Group C (Table 1 above).

Arom[17] points out that the reduced set of terms (Group C in the table above) is nearly the same as the one required to describe the rhythms, which held sway in Western music from the ars nova to the Renaissance. He says, 'it contains the vocabulary which is necessary and sufficient to explain the workings of most rhythmic systems in use in sub-Saharan Africa.' However, Arom goes on to establish the view that there are ambiguities with the use of 'standard' musical terms, even as they apply to Western music. Arom posits most of these terms designate either more than one notion or partially overlapping ones. For instance, he reviews several views by various scholars to address the vague use of the term "meter", leading to the idea of the "measure", as the source of confusion in the discussion of rhythm. Thus, proposed new terms to describe rhythmic systems that are void of the notion of measure and accentual matrix.

Of significance to my thesis is Arom's[18] definition of rhythm and discussion on *pure rhythmics*:

> "For there to be rhythm, sequences of auditive events must be characterized by contrasting features. This contrast may be created in three different ways: by accents, tonal colors or durations. In practice, however,

[17] Arom, *African Polyphony and Polyrhythm*, 183.
[18] Ibid.,202.

these three parameters usually operate together (though in a wide variety of ways)."

These three parameters are what Arom refers to as *marks*:

i. **Accents**: Contrast is obtained by means of an accentual *mark* that may be repeated regularly or irregularly. When there are no contrasts of tone colour or duration, accentuation is the only criterion for the determination of rhythm.

ii. **Tone colors**: Contrast is created by the regular or irregular alternation of different tone colors. When there are no accentual *marks* or contrasting durations, tone color is the only criterion for the determination of rhythm.

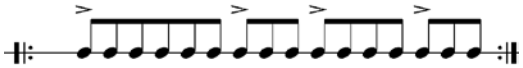
iii. **Durations**: Contrast results from successions of unequal values. In the absence of accentuation or differences in tone color, contrasting durations are the only criterion for the determination of rhythm.

In discussing *pure rhythmics* Arom[19] clarifies, "A clear initial distinction must be made between the rhythmic phenomena found in music where relative pitches form a scalar system (i.e., melodic music); and in music where the melodic parameter is neutralized, leaving only pure rhythmics…"Arom further states that *pure rhythmics* can be based on accentuation, on changing tone color, or simply on contrasting durations. He notes the fact that pure rhythm occurs in music for African idiophones and membranophones, as elsewhere. To buttress his point on *pure rhythmics*, Arom cites the following illustrative examples:

Example 1: Metric Continuum

[19] Ibid.,229.

Arom describes the example above as a metric continuum that lacks the properties that would bring it within the domain of *rhythmics*. This property is marking, either by accents, as in:



Example 2: Rhythmic figure marked by accents

or by a difference in tone color, as in:

Example 3: Rhythmic figure marked by tone color

Contrasting durations serve as the basis of rhythm in the example below:

Example 4: Rhythmic figure marked by duration

Thus, Arom notes that a sequence of rhythmic events can only be called a *rhythmic figure* if certain of its components are in some way *marked***.**

Finally, with respect to African polyrhythm, Arom[20] then states,

> "Polyrhythmics consists of the superposition of two or more rhythmic figures, each articulated in such a way that its constituent configurations (as determined by the accentuation, changing tone color, or alternation durations) will mesh with those of the remaining figures, and create an effect of perpetual interweaving. All the figures have a common temporal reference unit, the pulsation, and their periods, though differing in length,

[20] Ibid.,272.

> nevertheless stand in simple ratios, such as 1:2, 1:3, 2:3, 3:4, and so forth."

2.1.2 Application of Arom's Study

Arom's definition of *rhythmic figure* based on the type of *mark* (accent, tone color or duration) is derived with respect to African percussive genres in which pitch/melody has little relevance. Despite the fact that the three piano works (Euba, Ligeti and Uzoigwe) under examination each have a prominent pitch component, I have adopted Arom's approach in my analysis of the rhythmic patterns that constitute the polyrhythmic blocks of interest. This is because I am examining the rhythmic aspects of the three works (in which the piano invokes the components of African percussive genres) under the canopy of African Pianism. Thus, in reducing the rhythmic figures/components of these pieces to their essentials (while taking into consideration the general rhythmic nature of each piece), I reduce the 'pitch' component to instrumental 'tone color' (according to Arom's usage). That is, thinking of the piano as the equivalent of an African percussion ensemble with instruments of differing tone colors (rather than pitches as realized on the piano). This is similar to Cecil Taylor's performance concept that equates the piano to a set of eighty-eight drums.[21]

Further, I substitute Arom's *mark* described as 'duration' with 'attack.' The concept of duration is preserved since there is always the time component between contiguous attacks within a rhythmic figure. Other borrowed and modified terms from Arom's discussion are defined in the following section.

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[21] Valerie Wilmer, *As Serious As Your Life: The Story of the New Jazz* (London: Quartet Books, 1977), 45.

2.2 DEFINITIONS: TERMS & CONCEPT

For this Dissertation, the terms and concept employed in the analysis of the three piano pieces under study are defined in the following section. I borrowed/modified the first five terms (Pulse, Minimal Operational Value, Rhythmic Markers, Polyrhythmic Block, Interweaving Positions) from Arom's study. I coined and defined the analytical tool Polyrhythmic Degree.

2.2.1 Pulse

The *pulse* is the isochronous (equal) basic temporal reference. Concerning polyrhythmic music, the *pulse* is the common denominator, from the standpoint of temporal organization, for all the parts in a piece. It is therefore the basic unit of time with respect to which all durations are defined[22]. The *pulse* can be subdivided into binary or ternary elements. Subdivision of the *pulse* can also be a combination of binary and ternary elements, and so on.

2.2.2 Minimal Operational Value

The *minimal operational value* is the smallest subdivision of the *pulse.*[23] All other durations are multiples of this value.[24]

[22] Arom, *African Polyphony and Polyrhythm*, 230.
[23] Ibid., 231.
[24] This definition does apply to such situations where tuplets occur in a rhythmic figure.

2.2.3 Rhythmic markers

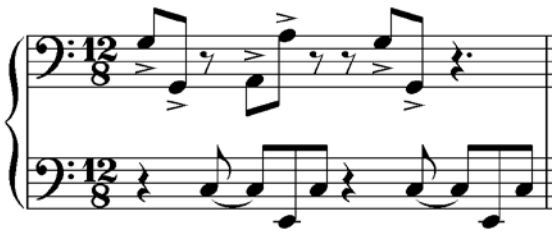
Rhythmic markers are the music elements that define or characterize a rhythmic pattern or figure. These are:

- Attack (x)
- Accent (>)
- Pitch/Tone Color (•)

The term, *rhythmic marker,* is used in parallel to Arom's *mark* (accent, tone color and duration) described in the previous section.

2.2.4 Polyrhythmic Block

A *polyrhythmic block* (PRB)[25] is the reduction of a polyrhythmic section showing the basic rhythmic elements of its constituent rhythmic patterns. The PRB below (Figure 2) is a reduction of the music Example 5:



Example 5: PRB Music Example

[25] The PRB concept is similar to the Time Unit Box System (TUBS) for notating drumming patterns devised by Phil Harland and elaborated by James Koetting.

1	2	3	4	5	6	7	8	9	10	11	12
>	>		>	>			>	>			
		X		X	X			X		X	X

Figure 2: Polyrhythmic Block (PRB)

The PRB above shows the following information:

- Two rhythmic figures: one in the top row and the other in the bottom row.
- Twelve positions (i.e. the twelve columns) where a *rhythmic marker* (attack, accent, or pitch/tone color) occurs (or does not occur) in the top, bottom or both rhythmic figures. Each position (column) represents the *minimal operational value* (eighth-note). In this case, the isochronous *pulse* (the basic temporal reference) is the dotted quarter-note.
- Twelve *rhythmic markers*: six accented notes in positions 1, 2, 4, 5, 8 and 9 in the top rhythmic line; six attacks in positions 3, 5, 6, 9, 11 and 12 in the bottom rhythmic line.

2.2.5 Interweaving Positions

Interweaving positions are the positions within a PRB where the *rhythmic markers* (attack, accent, or pitch/tone color) of the constituent rhythmic patterns do not coincide. For instance in Figure 2 above, positions 1, 2, 4 and 8 in the top (row) rhythmic pattern are *interweaving positions*. Likewise positions 3, 6, 11 and 12 in the bottom (row) rhythmic pattern.

2.2.6 Polyrhythmic Degree

Polyrhythmic degree (PD) is the quantity of polyrhythm in a PRB - the amount of non-coincidences between the constituent *rhythmic markers* of the attendant rhythmic patterns within a PRB. There are two types:

i. $PD^1 = n^1/ n^2 \times 100\%$

ii. $PD^2 = n^3/ n^4 \times 100\%$

Where,

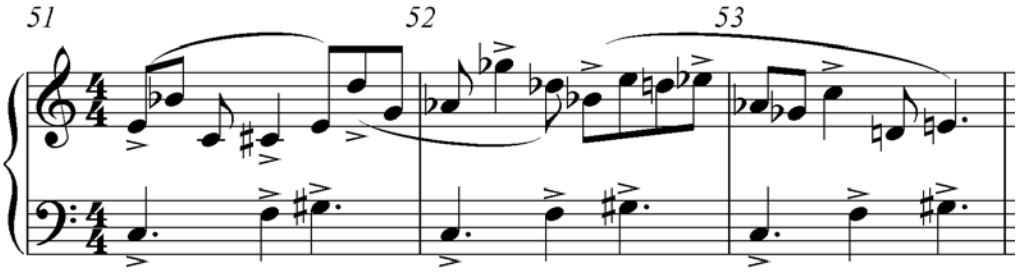
n^1 = # of *interweaving positions* in rhythmic figure(s) superposed on an ostinato line

n^2 = # of *interweaving positions* possible within an ostinato line

n^3 = # of *interweaving positions* in a specific PRB

n^4 = # of positions with at least a *rhythmic mark* in a specific PRB

PD^1 is applicable to the analysis of a PRB that features a fixed ostinato pattern against which other patterns are superposed. Since the ostinato is fixed (in terms of rhythmic content) the chance of a polyrhythm occurring in each repeated cycle of the ostinato pattern is uniform. In the music excerpt (Example 6) below from *Fanfares* with its corresponding PRB following in Figure 3, there are three cycles of the ostinato:



Example 6: Reduced score of *Fanfares* (mm.51-53)

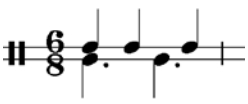
51								52								53							
1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
>			>			>			>			>			>			>					
>			>		>			>			>		>			>			>		>		

Figure 3: PRB - *Fanfares* (mm.51-53)

It is observed that one cycle of the ostinato offers only five chances (PRB positions 2, 3, 5, 7 and 8) for a polyrhythm to occur with another rhythmic pattern. So with each ostinato cycle, six PD^1 values are possible – 0% (no polyrhythm), 20%, 40%, 60%, 80% and 100%. For the example above (Figure 3):

- The number of *interweaving positions* in the top rhythmic figure, $P^1 = 5$
- The number of *interweaving positions* possible within the ostinato line, $P^2 = 15$
- *Polyrhythmic degree* for the PRB, $PD^1 = 33\%$.

PD^2 on the other hand, is applicable to the analysis of a PRB that does not feature a consistent ostinato pattern against which other rhythmic figures are superposed. The following examples are used for illustrations:



Example 7

Example 8

Example 9

1	2	3	4	5	6
X		X		X	
X			X		

Figure 4: Example PRB

1	2	3	4	5	6
X		X		X	
X	X		X		

Figure 5: Example 8 PRB

1	2	3	4	5	6
X			X		
X			X		

Figure 6: Example 9 PRB

The *minimal operational value* is the eight note for the examples above. Figure 4 (PRB for Example 7) has only four attack positions (PRB positions 1,3,4 and 5). The attacks between the two rhythmic lines coincide only once (PRB position 1) and *interweave* at three places (PRB positions 3,4 & 5). For Figure 5 (PRB for Example 8), there are five attack positions (PRB positions 1,2,3,4 & 5) with the attacks between the two rhythmic lines coinciding only once (PRB position 1). The attacks *interweave* at PRB positions 2,3,4 & 5. There are two attack positions and no *interweaving* for Figure 6 (PRB for Example 9). With P^3 defined as the number of *interweaving positions* in a PRB and P^4 defined as the number of PRB positions with at least a *rhythmic mark,* the PD^2 for the music examples above are calculated in Table 2 below:

Table 2: Polyrhythmic Degree Values

	P^3	**P^4**	**PD^2 (P^3/ P^4 x 100%)**
Figure 4 (Example 7)	3	4	75%
Figure 5 (Example 8)	4	5	80%
Figure 6 (Example 9)	0	2	0%

The PD^2 values above reflect the frequency of non-coincidences within the time frame defined by the PRB and within the context of the number of positions with at least a *rhythmic mark* (attack in this case).

In summary, a zero PD value indicates the absence of a polyrhythmic structure (as with Example 9 above), and a non-zero PD value indicates the occurrence of one. The higher the number of non-coincidences between the *rhythmic marks* of a PRB, the higher the PD value. For

mathematical and statistical considerations, PD^1 and PD^2 cannot be applied within the same piece. Which one is used depends on the nature of the piece.

For the purpose of this dissertation, I consider the frequency of non-coincidences between the *rhythmical marks* of the component rhythmic patterns of a polyrhythmic block as a yardstick to measure the degree of polyrhythm. The higher the frequency, the higher the degree (PD). The degree defines the "quantity" of polyrhythm.

2.2.7 African Pianism

In 1989 Akin Euba[26], an ethnomusicologist, composer, pianist and music scholar, defined African Pianism in an essay saying, "techniques used in the performance of (African) xylophones, thumb pianos, plucked lutes, drum chimes and the polyrhythmic methods of African instrumental music in general would form a good basis for an African pianistic style." Euba[27] further described the elements of an African Pianism as including:

- Thematic repetition
- Direct borrowings of thematic material (rhythmical and/or tonal) from African traditional sources
- The use of rhythmical and/or tonal motifs which, although not borrowed from specific (identifiable) traditional sources, are based on traditional idioms
- Percussive treatment of the piano
- Making the piano 'behave' like African instruments

[26] Akin Euba, *Essays on Music in Africa 2: Intercultural Perspectives* (Bayreuth: Bayreuth African Studies Series, 1989), 151.
[27] Ibid.,152.

In response to a recent enquiry regarding his current views on African Pianism, Euba[28] states, "African Pianism is a concept and a way of composing piano music, using African models." However, various schools of thought have been expressed regarding the validity of African Pianism as a concept, compositional style, or aesthetic. Valee[29] expressed his belief that, while such a genre can exist, it has not yet been realized. He further states, "It is my contention that the application of African Pianism has suffered to a significant degree by the over-appropriation of Western material which obscures its inherent "African-ness." Squinobal[30] advanced reasons why the term "Intercultural Musical Synthesis" is a more appropriate label for what Euba calls African Pianism. Using Euba's work in creative and intercultural musicology as basis, he argues that the concept of merging musical elements from different cultures is not limited to piano music, nor is it compulsory for African music to be involved in such synthesis. Similarly, Omojola[31] situates African Pianism within the context of intercultural activity in his article titled, "African Pianism as an Intercultural Compositional Framework: A Study of the Piano Works of Akin Euba."

Li Xin[32] discusses the vital issue of how to evaluate African Pianism. He says, "Since this way of piano music creation is featured as "intercultural" should we study it as we do Western music? Or should we interpret if from the viewpoint of African music? Or, is there another way to get close to this kind of music?" A full discussion with respect to the evaluation

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[28] Akin Euba, e-mail correspondence, January, 2012.
[29] Nemesio Valee, "Can African Pianism exist? Reflections on African Pianism: A Symposium and Festival," *Intercultural Musicology* Vol.2 nos. 1-2 (Oct 2000): 10-15.
[30] Jason Squinobal, "West African Music in the Music of Art Blakey, Yusef Lateef, and Randy Weston" (PhD. diss., University of Pittsburgh, 2009), 14.
[31] Bode Omojola, "African Pianism as an Intercultural Compositional Framework: A Study of the Piano Works of Akin Euba," *Research in African Literatures* 32 no.2 (2001): 153-174.
[32] Li Xin, "My Understanding of African Pianism," in *Dialogues in Music – Africa Meets Asia*, 2011, ed. Zhang Boyu (California: MRI Press, 2011), 59-68.

of the concept, African Pianism, is beyond the scope of this study. It will perhaps suffice to say that I regard African Pianism to be a valid and evolving compositional concept. The concept may eventually yield a larger body of meritorious works that will stand out as a distinct genre. For this to happen, users and exponents of the concept must be demonstrated to have gone beyond the mere synthesis of African musical elements with that of other musical cultures (the realm of intercultural musical activity). There is a corresponding need to develop a theoretical compositional framework that will rely mostly on the stylistic elements and structure of African traditional music in defining compositional coherence in their creative output.

2.3 METHODOLOGY

The polyrhythmic structures of the three piano works are examined using the following steps:

2.3.1 Step I – Identification of the Formal Structure

Identification of the formal structure based on the general phrase divisions, the use and treatment of themes/motifs, as well as other structural musical elements.

2.3.2 Step II – Identification of Polyrhythmic Sections & Representative PRBs

Identification of 1) the polyrhythmic and non-polyrhythmic sections, and 2) the representative PRBs for each section with a focus on where the major polyrhythmic combinations or changes occur.

2.3.3 Step III – PD Calculation

Calculation of the Polyrhythmic Degree (PD^1/PD^2) for each of the PRBs. The nature of each of the three pieces is taken into account in calculating the PDs:

Fanfares (Ligeti) and *Ukom* (Uzoigwe) share a fixed ostinato pattern against which other patterns are imposed. Thus, the chance of a polyrhythm occurring is the same for each repeated ostinato cycle. For these two pieces, PD^1 is therefore employed.

Theme from Chaka I (Euba) lacks a consistent ostinato pattern against which other rhythmic figures are superposed. Rather, the piece is based on the combinations of recurring rhythmic patterns and localized ostinatos. Hence, PD^2, is used to measure the number of *interweaving positions* against the totality of positions within a PRB where at least a *rhythmic mark* occurs.

2.3.4 Step IV - Plotting of PD Graph

Plot graph(s) - PD values (from step III) against time for each piano piece.

2.3.5 Step V – Observations

Observations from graph(s) - Investigation of the relationship between the formal structure (from step I) and the distribution of the various PD values over time (from step IV).

2.3.6 Step VI – Discussion & Conclusion

3.0 THREE PIECES: BACKGROUND & CONTEXT

Uzoigwe's *Ukom* (Talking drums for Piano Solo Op.11) is a piano evocation of *ukom* traditional music, an instrumental genre of the *Igbo* people of Nigeria. According to Uzoigwe[33], the *ukom* ensemble consists of three musical instruments and four players. The instruments are:

i. a set of ten small membrane drums that are graduated in size and collectively referred to as *aria nkwa* (drum row),

ii. a large open-ended, membrane drum called the *ebelu* which is characterized by its very deep tone quality and serves as the instrument for establishing musical pulse,

iii. a small wooden slit-drum called *ekere* which functions as a metronome.

Both ii and iii provide accompaniment to the principal instrument, the *aria nkwa* drum row. Two master musicians play on the *aria nkwa* drum row; the first, known as *Onye Agugu nkwa* (Singer of Music), is the principal soloist and group leader, while the second, referred to as *Onye Ikwukwe Nkwa* (Responder of Music) is the receiver soloist.

Ukom, in which the piano is made to behave like the *ukom* ensemble (described above), yields itself to an analysis using my methodology based on Arom's study (section 2.3). *Ukom*, similar to *Fanfares*, employs a fixed temporal reference/isochronous pulse; and the use of ostinato patterns upon which other rhythmic figures are imposed. The rhythmic patterns are characterized and differentiated by *rhythmic marks* (accent, attack and tone color) as discussed

[33] Joshua Uzoigwe, *Ukom: A Study of African Craftsmanship* (Okigwe, Nigeria: Fasmen Communications, 1998), 10.

by Arom. In addition, although the work is notated in 12/8, it lacks the accentual matrix associated with that meter in Western music.

In 1982 Gyorgy Ligeti encountered a collection of instrumental and vocal ensemble music of the Banda-Linda ethnic group from the Central African Republic recorded by Simha Arom and stated,

> "The formal simplicity of sub-Saharan African music with its unchanging repetition of periods of equal length…is in sharp contrast to the inner structure of these periods which, because of simultaneous super-positioning of different rhythmic patterns, possesses an extraordinary degree of complexity. Gradually through repeated listening, I became aware of this music's paradoxical nature: the patterns performed by the individual musicians are quite different from those which result from their combination. In fact, the ensemble's super-pattern is in itself not played and exists only as an illusory outline. I also began to sense a strong inner tension between the relentlessness of the constant, never-changing pulse coupled with the absolute symmetry of the formal architecture on the one hand and the asymmetrical internal divisions of the patterns on the other. What we can witness in this music is a wonderful combination of order and disorder which in turn merges together producing a sense of order on a higher level."[34]

Further, in his comments regarding Arom's documentation of the music and structure of the traditional music of Central African Republic, Ligeti[35] says,

> "For composition, it opens the door leading to a new way of thinking about polyphony, one which is completely different from the European metric structures, but equally rich, or maybe, considering the possibility of using a quick pulse as a "common denominator" upon which various patterns can be polyrhythmically superimposed, even richer than the European tradition."

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[34] Arom, *African Polyphony and Polyrhythm*, xvii.
[35] Ibid., xviii.

Thus, with these comments made in 1982 and an examination (use of ostinato, isochronous pulse, phrase structure, periodicity) of *Fanfares* composed in 1985, there is ample evidence to support the premise that Ligeti engaged elements of the traditional music (especially instrumental) of Central African Republic in this piano work. This informs on one hand my decision to examine *Fanfares* within the context of African Pianism, and on the other, the use of Arom's approach to the analysis of African rhythm and polyrhythm as the basis of my methodology. *Themes from Chaka* is based on the prelude from Euba's opera, *Chaka* (1970). The opera, in two chants, is based on an epic poem by Leopold Sedar Senghor. The work, which amalgamates twentieth-century compositional techniques with elements of African traditional music, is scored for a combination of African and Western instruments. Unlike *Fanfares* and *Ukom*, Euba's *Themes from Chaka* makes no extensive use of strict ostinato, nor is there a consistent isochronous pulse. However, it does employ specific rhythmic patterns rooted in the *Yorùbá* drumming tradition. These patterns, functioning within various polyrhythmic blocks, are also susceptible to analysis using an Arom-based approach albeit with slight modifications.

4.0 ANALYSIS & OBSERVATIONS

4.1 ANALYSIS I – *UKOM* (JOSHUA UZOIGWE)

Uzoigwe provides an analytical overview of *Ukom* in the first publication[36] of *Ukom.* I will reference relevant aspects of this material in my analysis and observations.

4.1.1 Step I – Identification of the Formal Structure

Uzoigwe[37] identifies the form of *Ukom* to be ABACADA with introduction and coda:

Table 3: Formal Divisions (*Ukom*)

SECTION	**Introduction** m.1	A1 m.5	B m.47	A2 m.81	C m.105	A3 m.118	D m.122	A4 m.157	**Coda** m.179
DURATION (# of Measures)	4	42	34	24	13	4	35	22	4

A tripartite structure permeates *Ukom* at four different levels:

[36] Joshua Uzoigwe, "Ukom" in *Studies in African Pianism IV: Talking Drums for Piano Solo Op 11* (Yaba, Nigeria: Mgbo Music, 1999), 2-3.
[37] Ibid.,2.

Level 1: From Table 3 above, the Introduction and Coda (four measures each) constitute the first and third (outer) sub-sections, while the main section of the work (ABACADA) constitutes the second (middle) sub-section.

Level 2: Similar to the first level, at the second level section A1 has introductory (mm.5–8) and transitory (mm.43-46) sub-sections of four measures each as the outer sub-sections. The principal theme of the work is presented in the middle sub-section (mm.9-42).

Level 3: The presentation of the main theme in section A1 also has a tripartite internal structure. The first part of the theme presented in mm.9-28 and the second part in mm.33 to 42 constitute the first and third sub-divisions respectively. The second sub-division is a transitory passage (mm.29-32), which is repeated twice.

Level 4: Sections B, C, D have a tripartite internal structure:

Table 4: Internal Divisions (Ukom)

SECTION	SUB – SECTION		MEASURES (#)
B	b1	m.47	10
	b2	m.57	18
	b3	m.74	6
C	c1	m.105	5
	c2	m.110	5
	c3	m.115	3
D	d1	m.122	10
	d2	m.132	15
	d3	m.147	10

4.1.2 Step II – Identification of Polyrhythmic Sections & Representative PRBs

Save a few spots (introduction, sections B and D, and the closing) polyrhythms occur throughout the piece. *Rhythmic marks* identified for use in the representative PRBs are:

Table 5: Rhythmic Marks (Ukom)

SECTION	RHYTHMIC MARK	
	OSTINATO	NON-OSTINATO RHYTHMIC FIGURES
A	attack	accent
B	attack	accent/attack
C	attack	accent/attack
D	accent/attack	accent/attack

Please find the thirty-three PRBs[38] representative of the polyrhythmic activities in sections A, B, C and D in Appendix A.

4.1.3 Step III – PD Calculation

n^1 = # of *interweaving positions* in rhythmic figure(s) superposed on an ostinato line

n^2 = # of *interweaving positions* possible within an ostinato line

$PD^1 = n^1 / n^2 \times 100\%$

The PD^1 values for each of the sectional PRBs are calculated as follows in Table 6:

[38] The number of PRBs selected per section is essentially a function of the attendant polyrhythmic activity/non-activity (with emphasis on where the major changes occur) and not necessarily reflective of the length/duration of the sections. However, an effort is made to match the number of PRBs in proportion to the individual length/duration of the sections.

Table 6:PD[1] (Ukom)

SECTION	PRB	MEASURE	n^1	n^2	PD1
INTRODUCTION	1	1	-	4	0%
A^1	2	5 – 8	8	20	40%
	3	13 – 16	10	20	50%
	4	29 – 32	12	20	60%
	5	33 – 36	11	20	55%
	6	41 – 45	8	20	40%
B	7	47	12	12	100%
	8	57 – 58	8	12	67%
	9	59 – 60	12	12	100%
	10	65 – 66	8	12	67%
	11	69 – 70	12	12	100%
	12	73/74	-	4	0%
A^2	13	81 – 84	4	20	20%
	14	89 – 92	12	20	60%
C	15	105	2	6	33%
	16	108	5	6	83%
	17	111	6	6	100%
	18	114	4	6	67%
	19	115	3	6	50%
A^3	20	118 – 121	6	20	30%
D	21	123	4	4	100%
	22	125	5	5	100%
	23	127 – 128	6	12	50%
	24	129	4	4	100%
	25	132 – 135	15	15	100%
	26	147	4	4	100%
	27	149	5	5	100%
	28	152 – 155	13	21	62%
	29	156	-	8	0%
A^4	30	157 – 160	10	20	50%
	31	165 – 168	13	20	65%
	32	173 – 176	10	20	50%
CODA	33	179 – 182	-	-	0%

4.1.4 Step IV – Plotting of PD Graph-

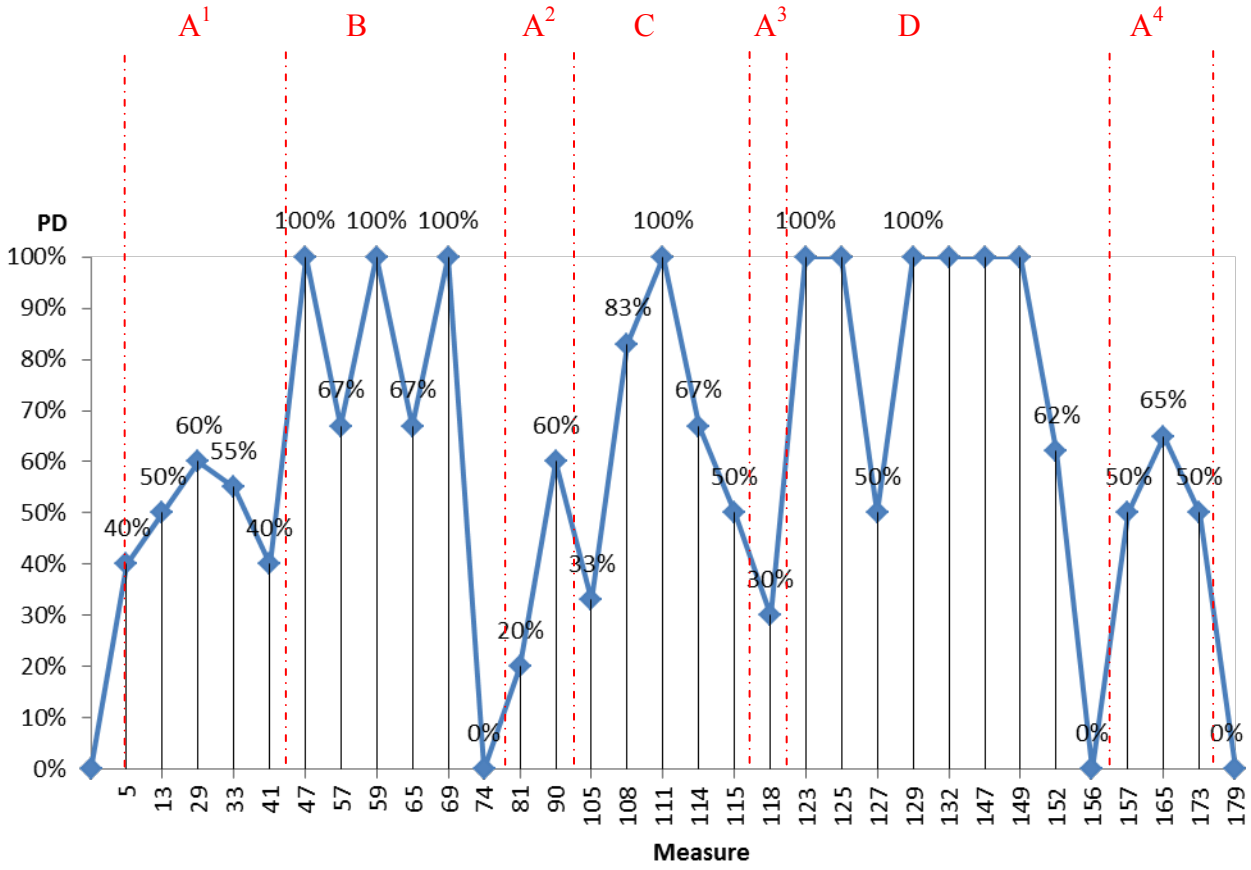


Figure 7:PD Distribution (*Ukom*)[39]

4.1.5 Step IV – Observations

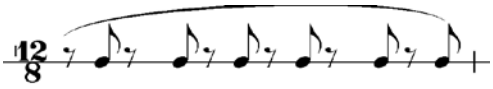
1) Polyrhythm occurs in all the main sections A, B, C & D.

[39] The number of data points in each section is not perfectly reflective of the length/duration of the section. As stated in Section 2.3.2, the representative PRBs for each section are selected with a focus on where the major polyrhythmic combinations or changes occur.

2) There are six ostinato patterns, which present an almost uniform "chance" of polyrhythm occurring within the piece. This is deduced as follows:

The six ostinato patterns are reduced to their rhythmic elements in the following examples:

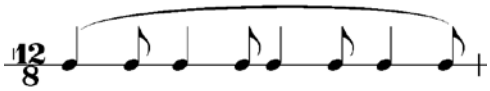
Example 10: Ostinato 1 (*Ukom* Section A)



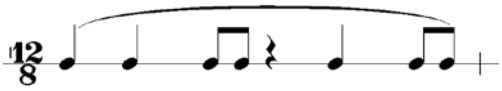
Example 11: Ostinato 2 (*Ukom* Section B)

Example 12: Ostinato 3 (*Ukom* Section B)

Example 13: Ostinato 4 (*Ukom* Section C)



Example 14: Ostinato 5 (*Ukom* Section D)



Example 15: Ostinato 6 (*Ukom* Section D)

The following figures are PRB reductions of the six ostinato patterns above:

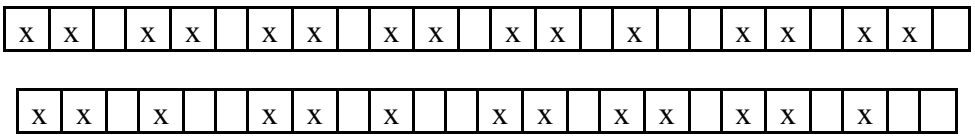


Figure 8: PRB for Ostinato 1 (*Ukom* Section A)

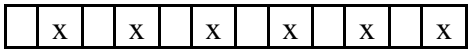


Figure 9: PRB for Ostinato 2 (*Ukom* Section B)

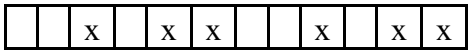


Figure 10: PRB for Ostinato 3 (*Ukom* Section B)

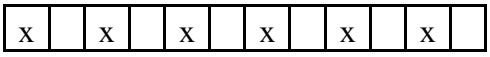


Figure 11: PRB for Ostinato 4 (*Ukom* Section C)

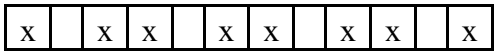


Figure 12: PRB for Ostinato 5 (*Ukom* Section D)

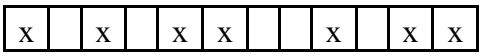


Figure 13: PRB Ostinato 6 (*Ukom* Section D)

From the figures above the number of possible interweaving positions for each ostinato pattern (n^2), i.e. the positions without a *rhythmic mark* are tabulated below:

Table 7: No. of Interweaving Positions I (*Ukom*)

SECTION	A	B		C	D	
PATTERN	Ostinato 1	Ostinato 2	Ostinato 3	Ostinato 4	Ostinato 5	Ostinato 6
DURATION	4 measures (e x 12 x 4)	1 measure (e x 12)	1 measure (e x 12)	1 measure (e x 12)	1 measure (e x 12)	1 measure (e x 12)
n^2	20	6	6	6	4	5

Given the same time duration (governed by the longest ostinato pattern) of four measures (e x 12 x 4), the number of possible interweaving positions for each ostinato pattern (n^2) will be:

Table 8:No. of Interweaving Positions II (*Ukom)*

SECTION	A	B		C	D	
PATTERN	Ostinato 1	Ostinato 2	Ostinato 3	Ostinato 4	Ostinato 5	Ostinato 6
n^2	20	24	24	24	16	20

3) Beyond length/duration, Ostinato 1 (Example 10) differs from the other five ostinato patterns (Examples 11-15) in another way: Ostinato 1 is asymmetrical as a result of its three-phrase structure that occurs over four measures. On the other hand, the other ostinato patterns are a measure long and do not have the asymmetrical structure of Ostinato 1.

4) It is noted that Uzoigwe[40] identifies section B as a "musical dance" for its "hot tempo" or fast rhythmic character. Further, he identifies section C as the second "musical dance" section, whose slow moving tempo and mellow sound not only creates a change of mood but also contrasts clearly with the fast and wild part B. Uzoigwe also identifies the end of section D as the main "climax" of the piece. It is observed from Figure 4 (above) that the broadest PD range (0% to 100%) and maximum PD value (100%) occur in the "musical dance" sections (B & C) and section D where the "climax" occurs:

Table 9: **PD Range Distribution**

SECTION	A^1	B	A^2	C	A^3	D	A^4
PD RANGE (%)	40-60	0-100	20-60	33-100	No range (30)	0-100	50-65

5) It is also observed that it is only in section D (where the main "climax" occurs) that the highest PD value of 100% is attained and sustained for a stretch of time (m.129-150).

6) 0% PD value (meaning the absence of polyrhythm) occurs four times:

[40] Uzoigwe, "Ukom" in *Studies in African Pianism IV*, 3.

Table 10: 0% PD Distribution

Section	Position	No. of Rhythmic Patterns	PD	Comments
Introduction	m.1	1	0%	-
B	m.74	2	0%	Secondary "climax"[41]
D	m.156	2	0%	Identified as the Main "climax" by Uzoigwe[42]
Coda	m.179	2	0%	Identified as the Secondary "climax" by Uzoigwe[43]

From the table above, a zero PD value occurs as a result of one of two reasons:

i. No interweaving (polyrhythm) between the attendant patterns (mm.74, 156 & 179)

ii. The occurrence of an ostinato line without the imposition of another rhythmic pattern (m.1)

4.1.6 Step V – Discussion & Conclusion

Musical coherence occurs in *Ukom* on two levels: Firstly, the repetitive theme (section A material) provides an element of structural coherence and stability, especially as it occurs four different times, functioning as the link between the contrasting B, C and D sections. As previously observed (section 4.1.5), section A differs from the other sections most essentially with respect to the *polyrhythmic degree* (i.e. the quantity of polyrhythm). Section A comes with a

[41] See section 4.1.6 for explanation.
[42] Uzoigwe, "Ukom" in *Studies in African Pianism IV*, 2.
[43] Ibid.,2.

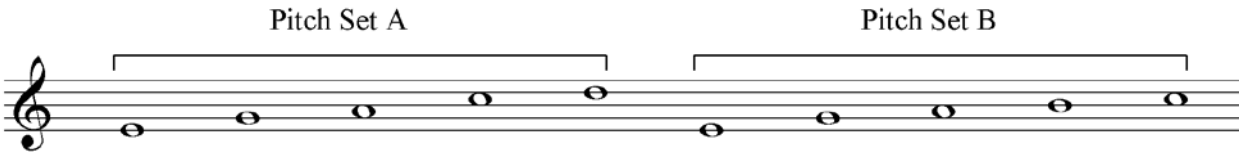
PD range (20% to 65%) that is consistently smaller than that of other sections (0% to 100%) – see Figure 7. In addition, the duration and asymmetric phrase structure of the attendant ostinato pattern in section A set it apart from the other sections. Consequently, the theme from section A (with its polyrhythmic character) occurring four different times serves as the four pillars on which the structure of *Ukom* is hinged, although the third pillar is strategically shorter than the others.[44]

On another level, musical coherence exists because of the elements that run consistently through all sections:

i. The consistent occurrence of polyrhythms incorporated within ostinato patterns

ii. The six ostinato patterns present about the same number of interweaving "opportunities" for polyrhythm to occur

iii. Pitch material is consistent: two pentatonic sets based on the pitch system of the ten traditional *ukom* drums (Section 3.0 refers). The six ostinato patterns make use of pitch set A and the melodic materials as well as other rhythmic patterns essentially make use of pitch set B[45]:



Example 16: *Ukom* Pitch Collection

[44] See p.37 for the role of the third pillar.
[45] Uzoigwe expanded pitch set B to include the last pitch (D) of pitch set A in the non-ostinato melodic materials.

iv. The whole work employs three primary time durations: eighth (e), quarter (q) and dotted quarter-note (q.) rhythms. The *minimal operational value*, the eighth-note (e), serves as the basis of the rhythmic structure.

From the foregoing, the polyrhythmic factor is common to both levels of musical coherence. It is important to note that the first level of musical coherence (discussed above) informs the overall structure of *Ukom*. Then the underlying polyrhythmic structure (the distribution of the PD values and the range) articulates this overall structural scheme:

- The PD distribution in the A sections range between 20% to 65%
- The PD in the alternating "musical dance" sections B and C as well as the climactic D section range between 0% to 100%

Before going on to shed more light on Uzoigwe's controlled use of polyrhythms to yield specific results, it is important to establish the definition of "climax" within the context of *Ukom.* As previously mentioned, Uzoigwe identifies the end of section D as the main "climax" and a secondary "climax" established in the coda. The unique event at m.156 (the end of section D) is the sudden elimination of polyrhythm (PD = 0%) coupled with the unexpected occurrence of a dotted half note rhythm (occurring for the first and only time) that drastically slows all motion previously set up in the piece. Similarly, polyrhythm is eliminated (PD = 0%) at m.179 (the beginning of the coda). However, the sense of motion is not weakened (compared to m.156) by the repeated chords in eighth-note rhythm. This is perhaps one reason why Uzoigwe considers this "climax" a diminution of the main one at m.156. In summary, the elimination of polyrhythm (the element that defines coherence in the work) ultimately defines the "climax." With the same rationale, I consider the end of the "musical dance" at section B (m.74) with a zero PD value another secondary "climax", although Uzoigwe never identifies this section as a "climax".

Uzoigwe thus controls his use of polyrhythm to strengthen the impact of the main "climax". This is evident in the PD distribution of section D. The section, which in itself follows an internal tripartite partition (see Table 4 above), is characterized by interlocking rhythms that employ virtually all available *interweaving* positions. This is reflected in the PD value of 100% that is attained right from the first part (mm.122 – 131) of section D – see Figure 7. The second part (mm.132 – 146) of section D is where the interlocking rhythms with the maximum PD value of 100% is attained (after a brief point of repose at m. 127) and sustained over the longest period in the entire piece (see Figure 7). This polyrhythmic section provides the tension required to strengthen the impact of the sudden elimination of polyrhythm at the "climax" (m.156).

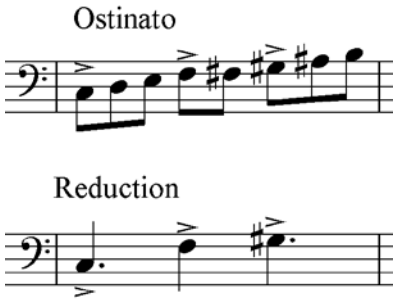
Uzoigwe also creates a local "climax" in the second "musical dance" (section C) with the controlled use of polyrhythm. As seen in Figure 7, the polyrhythmic structure (the distribution of PD values) outlines an arc shape. The section starts with a PD value of 33% rising to 83%. Uzoigwe thickens the texture of the music with the use of three rhythmic lines to attain a PD value of 100% at m.111 (the peak of the arc) to create the local "climax". In this passage, Uzoigwe acknowledges[46] the creation of momentum. He employs only four measures of the section A theme (118 – 121) with a PD value of 30% so as not to slow down the surging momentum towards the section D "climax".[47] Prior to m.118, there is a gradual decline in the *polyrhythmic degree* from 100% (at m.111) to 67% and 50% (mm.114 – 115) accompanied by a thinning of texture.

[46] Uzoigwe, "Ukom" in *Studies in African Pianism IV*, 3.
[47] This helps account for the shortness of the "third pillar" (from p.35).

With the foregoing observations and discussion, it is evident that polyrhythms within *Ukom* not only occur to define musical coherence but also serve to define the structure of the piece.

4.2 ANALYSIS II – *FANFARES* (GYORGY LIGETI)

For the purpose of analysis, the ostinato is reduced to its major rhythmic element – the accented notes that divide the ostinato figure into subgroups of three quarter-notes, two quarter-notes and three quarter-notes (See Appendix D for the full score reduction):



Example 17: **Ostinato Reduction (*Fanfares*)**

This implies that only the three accents in each ostinato cycle are considered as *rhythmic markers* in the analysis of polyrhythmic structure of the work as far as the ostinato pattern is concerned. The rationale behind is the fact that it is the accented notes that define the rhythmic character of the unrelenting ostinato, which consists of eighth-notes throughout.

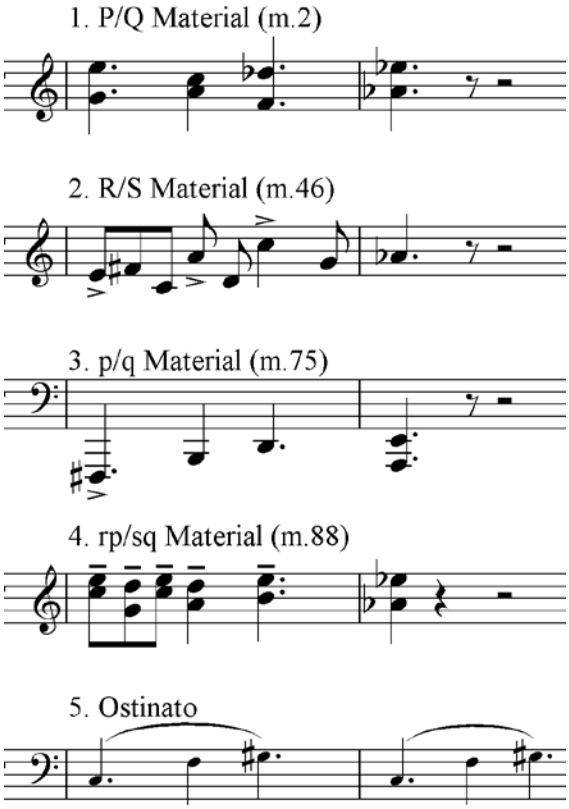
4.2.1 Step I – Identification of the Formal Structure

The materials imposed upon a pervading ostinato essentially serve as the basis for the phrase structure, which define the formal sections of this work. These materials occur in phrase pairs that are themselves fundamentally based on a two-part structure. On the first level, there is an antecedent phrase to which a consequent phrase responds. On a smaller level, the antecedent and consequent phrases each have dual sub-divisions. For example (with reference to the reduced score – Appendix D):

Table 11: **Phrase Structure (*Fanfares*)**

PHRASE	P1 (Antecedent)		Q1 (Consequent)	
SUB-PHRASE	x	y	x	y
	m.2	m.4	m.6	m.7

The four types of material employed in the piece, marked as P/Q, R/S, p/q and rp/sq in the reduced score (Appendix D), are summarized in Example 18 (below). It is observed that material type p/q is a derived from P/Q and rp/sq is a synthesis of P/Q and R/S. These materials essentially articulate the three-part division of the ostinato.



Example 18: **Material Types (*Fanfares*)**

Based on the distribution of the materials imposed on the ostinato, phrase structure and the alternate occurrence and non-occurrence of polyrhythms, *Fanfares* follows the form – AB with a coda:

Table 12: **Formal Divisions (*Fanfares*)**

FORM	**A**		**B**			**CODA**	
SUB-SECTIONS	**A^1**	**A^2**	**B^1**		**B^2**		
PHRASE TYPE	P/Q	R/S	P/Q	p/q	rp/sq	P/Q	rp/sq
DURATION (measures)	(1-45)	(46-62)	(63-74)	(75-87)	(88-171)	(172-201)	(202-214)
	62		109			43	
POLYRHYTHM	Absent	Present	Absent		Present	Present	

4.2.2 Step II – Identification of Polyrhythmic Sections & Representative PRBs

As mentioned earlier, the three accented notes of the ostinato pattern are considered as *rhythmic markers* for the purpose of analysis. With respect to the materials (P/Q, R/S etc) imposed upon the ostinato, it is the nature of the music as it unfolds that dictates the *rhythmic markers* used for the PRBs:

i. Sub-Section A^1 *rhythmic markers*:
   - *accent* (accented chords)
   - a combination of *attack* & *pitch/tone color* (unaccented chords stand out against the single ostinato notes)

   (See Example 19 below)

ii. Sub-Section A^2 *rhythmic markers*:
   - *accent* (accented single notes)

   (See Example 19 below)

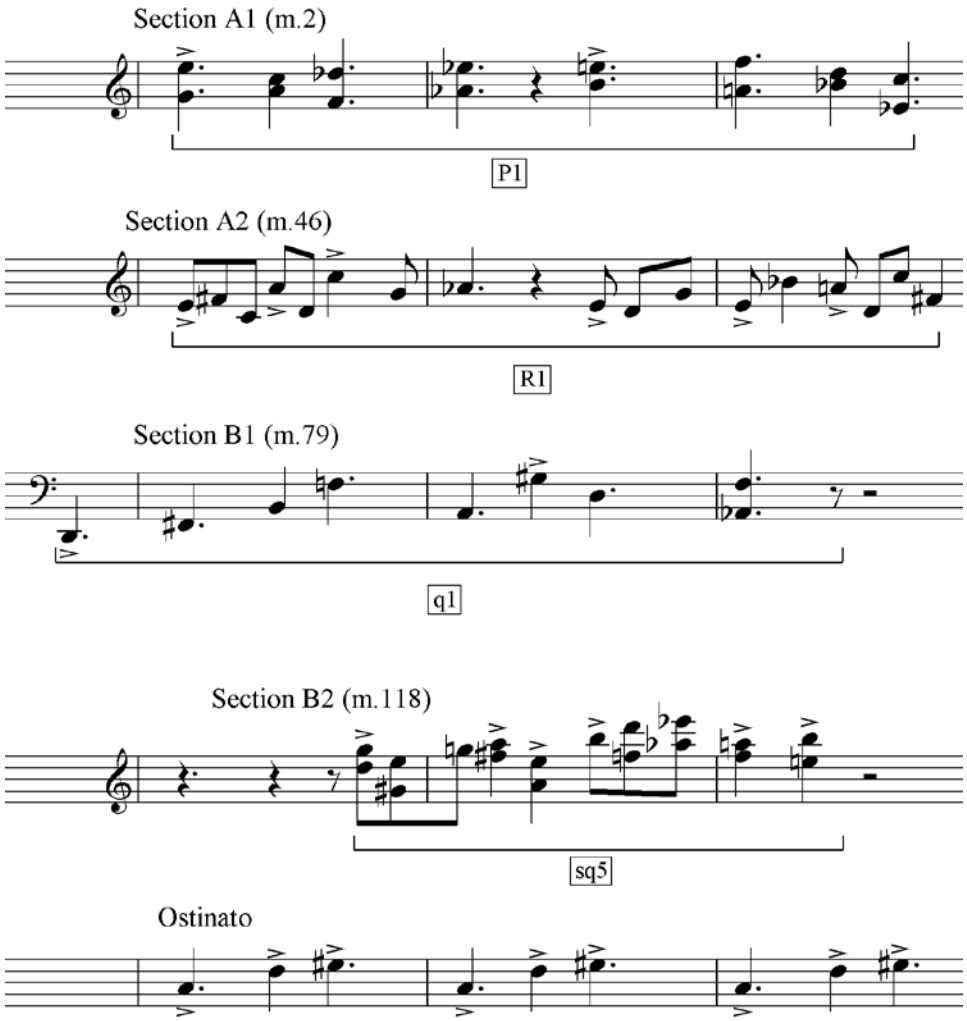
iii. Sub-Section B^1 *rhythmic markers*:
   - *accent* (*accented* single notes & chords)
   - *attack* & *pitch/tone color* (unaccented chords stand out against the single ostinato notes)
   - *attack* & *pitch/tone color* (unaccented single notes moving in disjunct motion stand out against the single ostinato notes)

   (See Example 19 below)

iv. Sub-Section B^2 *rhythmic markers*
   - *accent* (*accented* single notes & dyads)

- a combination of *attack* & *pitch/tone color* (unaccented chords stand out against the single ostinato notes)

  (See Example 19 below)



Example 19: *Rhythmic marks* in different sections (*Fanfares*)

The PRB reductions of the examples in Example 19 above are shown in Figure 11 below (Attack = x, Accent = >):

Section A[1] (m.2)

2								3								4							
1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
>			x		x			x					>			x			x		x		

Section A[2] (m.46)

46								47								48							
1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
x			x		x								x			x			x				

Section B[1] (m.79)

			79								80								81							
6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
>			x			x		x			x			>		x			x							

Section B[2] (m.118)

117								118								119							
1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
						>	x		>		>		>	x	x	>		>					

Ostinato

1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
>			>		>			>			>		>			>			>		>		

Figure 14: Examples of PRB Reductions (*Fanfares*)

The twenty-eight PRBs[48] representative of different sections of *Fanfares* can be found in Appendix B.

[48] The number of PRBs selected per section is essentially a function of the attendant polyrhythmic activity/non-activity (with emphasis on where the major changes occur) and not necessarily reflective of the length/duration of the sections. However, an effort is made to match the number of PRBs in proportion to the individual length/duration of the sections.

4.2.3 Step III – PD Calculation

n^1 = # of *interweaving positions* in rhythmic figure(s) superposed on an ostinato line

n^2 = # of *interweaving positions* possible within an ostinato line

$PD^1 = n^1 / n^2 \times 100\%$

The PD^1 values for each of the sectional PRBs are calculated as follows:

Table 13:PD^1 (*Fanfares*)

SECTION	SUB-SECTION	PRB	PHRASE	n^1	n^2	PD^1
A	A^1	1	P1	0	15	0%
		2	Q1	0	15	0%
		3	P2	0	15	0%
		4	P3	0	15	0%
		5	P5	0	15	0%
	A^2	6	S1	6	23	26%
		7	R2	2	15	13%
B	B^1	8	P6	0	19	0%
		9	Q6	0	29	0%
		10	q2	0	15	0%
	B^2	11	rp1	4	15	27%
		12	sq3	12	22	55%
		13	sq5	6	9	67%
		14	sq6	6	9	67%
		15	sq7	6	9	67%
		16	rp9	4	8	50%
		17	sq9	4	12	33%
		18	RESET POINT	0	10	0%
		19	rp11	7	9	78%
		20	rp13	3	10	30%
		21	rp14	14	19	74%
		22	rp15	3	10	30%
		23	sq15	9	11	81%
CODA		24	Q7	5	15	33%
		25	P9	2	15	13%
		26	RESET POINT	0	5	0%
		27	rp17	4	7	58%
		28	FINAL	0	0	0%

4.2.4 Step IV – Plotting of PD Graph

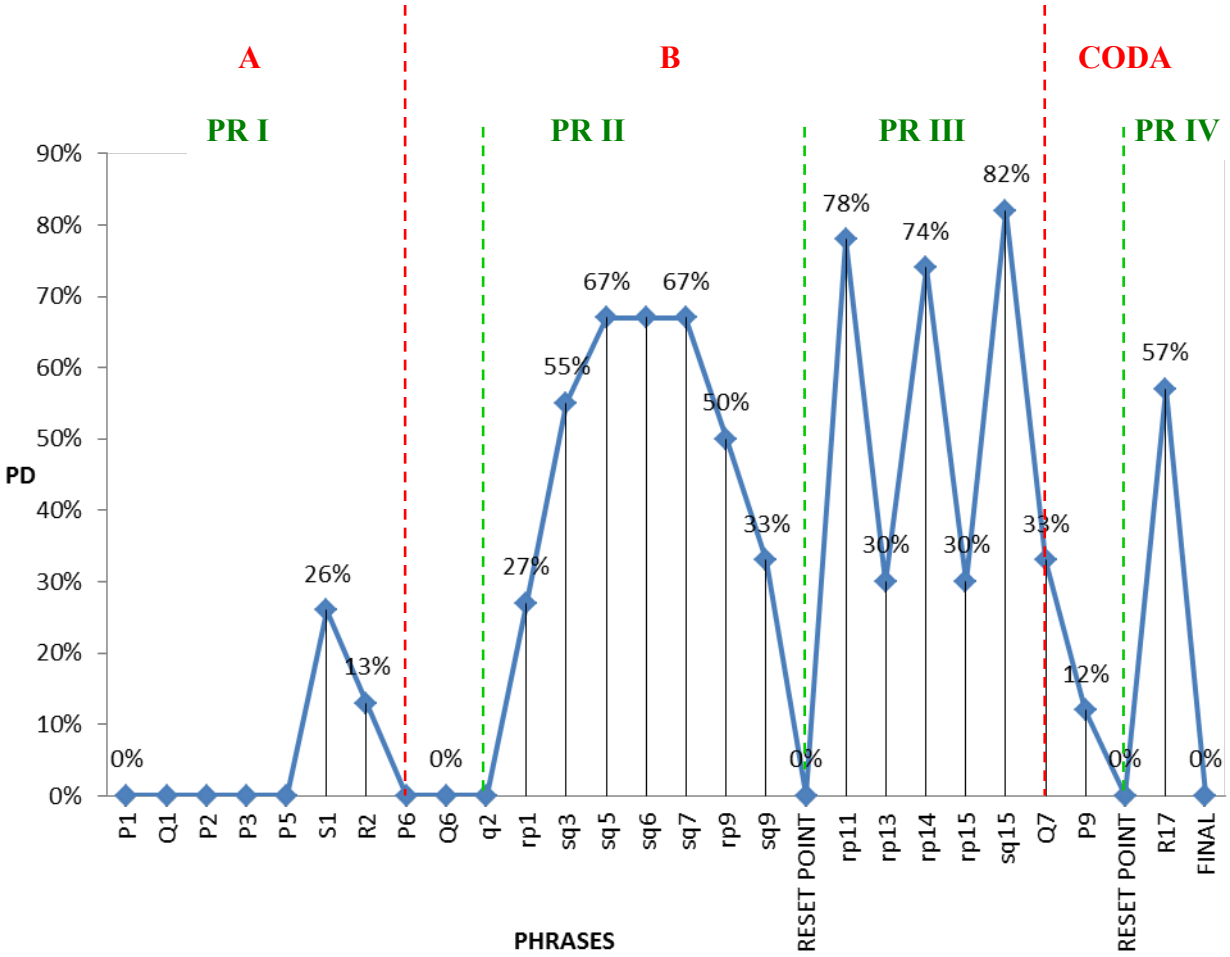


Figure 15: **PD Distribution & Structural Partitions (*Fanfares*)**[49]

Table 14: The span of sections in the formal & polyrhythmic sections (*Fanfares*)

SPAN (No of Measures)			
A 62	B 109	CODA 43	
PR I 87	PR II 46	PR III 64	PR IV 17

[49] The number of data points in each section is not perfectly reflective of the length/duration of the section. As stated in Section 2.3.2, the representative PRBs for each section are selected with a focus on where the major polyrhythmic combinations or changes occur.

4.2.5 Step V – Observations

1) The graph in Figure 15 (above) outlines two types of structural partitions. Firstly, there is the formal division into three sections (AB+ Coda) as identified in Table 12 under section 4.2.1 above (based on material treatment, phrase structure and the alternate presence and absence of polyrhythm). The red broken lines in Figure 15 above outline the formal sections. Secondly, there is the partition into four parts (PRI, PR II, PR III & PR IV) based solely on the polyrhythmic structure[50], specifically the distribution of the PD values over time. The green broken lines in Figure 15 outline the four sections.
2) From Figure 15, it is seen that it is at section B where polyrhythm is most extensively employed. The brief occurrence of polyrhythm in section A (the S1 and R2 phrases with 26% and 13% PD values respectively) is a subtle reference to what is to come.
3) The PD distribution for section PR II (Figure 15) is a long arc starting from a point of no polyrhythmic activity (PD = 0%) to a sustained peak of polyrhythmic activity (PD=67%) and then gradually falling back to a point of no polyrhythmic activity. On the other hand, section PR III consists of microcosms of section PR II in the sense that the PD distribution is characterized by three smaller arcs but with a different PD range (bottom to peak value difference)[51].
4) The ensuing six arcs from the underlying polyrhythmic structure (the distribution of the different PD values) outline an element of musical contrast. Each arc differs in profile in

[50] It is important to clarify that the occurrence/ absence of polyrhythm is part of the criteria for determining the *formal structure* of the piece. Nevertheless, independent of this is the *polyrhythmic structure*, which is the result of the distribution pattern of the various PD values.
[51] While the long arc (section PR II) has a PD range of 0% to 67%, the three smaller arcs (section PR III) have a PD range of 30% to 82%

terms of the duration over which it occurs and the PD range (bottom to peak value difference).

5) A crucial aspect of the piece is the way the various phrases are structured. The phrases mainly occur on a dual binary level (Table 11). However, deviations from this occur through phrase expansion and contraction at strategic points. It is important to note that these deviations only occur with the R/S and rp/sq phrase materials at the polyrhythmic sub-sections A^2 and B^2. An example of a phrase expansion is phrase rp14 (m.159) with three sub-phrases x, y and z (see attached reduced score – Appendix D). The sub-phrase z is the source of expansion. The sq13 phrase (m.158), consisting of a single sub-phrase (x) is an example of phrase reduction. The concluding phrase rp16 (m.170) with very short sub-phrases has no consequent phrase sq16.

4.2.6 Step VI – Discussion & Conclusion

The relentless ostinato in *Fanfares* is a potential source of monotony and stasis. Likewise, the consistent underlying diatonic pitch relationships and the rhythmic aspect of the imposed materials, which is limited to rhythms based on the dotted quarter-note, the quarter-note and the eighth-note - the *minimal operational value.* However, Ligeti employs various means, including the bold exploration of register and phrase structure alterations, to provide contrast and sustain forward movement. More importantly, his controlled use of polyrhythm yields elements of contrast/variation. This occurs at two structural levels:

- The alternate occurrence and absence of polyrhythm coupled with the occurrence and treatment of the material types (P/Q, R/S et al) shape the piece into **three** sections that define the formal divisions of the piece (see Table 12 and Figure 15).

- The underlying six arc profiles created by the distribution of the varying *degrees* of *polyrhythm* (see Figure 15 and Table 14) imply another source of contrast that shapes the piece into **four** sections.

At the largest structural level, there is an apparent polyrhythm of three against four as a result of the two types of sectional partition (discussed above) based on the controlled use of polyrhythm. The first partition type divides *Fanfares* into three segments that correspond to three distinct durations (see Table 14). The second partition type divides the piece into four distinct durational segments independent of the other three durations (see Table 14). The durations are super-imposed in a three against four "polyrhythmic" relationship within the total duration of *Fanfares*.

A source of uniformity in *Fanfares* is the underlying diatonic pitch relationships. To start with, the 8-note ostinato pattern bears a relationship with the diatonic scale: the former transposes its first four notes (tetrachord) up by a tritone while the latter transposes the same tetrachord by a perfect fifth. Secondly, the three accented ostinato pitches C, F and $G^{\#}$ (A^{b}) form an f minor triad. Thirdly, pitches that occur vertically above and below the three accented ostinato pitches form diatonic chords with the latter. Some examples of these diatonic chords are marked in the reduced score. See phrases P1, P2, Q3, R1, R2, P6, p1 & rp1 in the reduced score (Appendix D). However, Ligeti orders the occurrence of the diatonic chord types to create contrast and to articulate the formal divisions of *Fanfares*. Table 15 (below) summarizes the relationship between the diatonic material types, the formal and polyrhythmic structures of the work.

Table 15: Relationship between the Diatonic Materials, the Formal & Polyrhythmic Structures

FORMAL SECTION		POLYRHYTHM	OSTINATO POSITION	PITCH MATERIAL TYPE		
				DYADS	TRIADS	OTHERS
A	A^1	Absent	LH	-	Major	Minor 7^{th}
			RH	-	Minor	Dominant 7^{th}
	A^2	Present	LH	Major 3^{rd} Minor 6^{th}	-	-
			RH	Minor 3^{rd} Major 6^{th}	Minor Diminished	-
B	B^1	Absent	LH	-	-	Major 7^{th} Minor 7^{th} Dominant 7^{th}
			RH	Tritone Minor 3^{rd} Major 6^{th}	-	-
	B^2	Present	LH & RH	Major 3^{rd}	Minor Major	-

In creating elements of contrast, Ligeti also creates subtle tension in sections A^2 and B^2 to which the underlying polyrhythmic structure contributes. This he achieves at points where uniformity is weakened:

1. In the non-polyrhythmic sub-section A^1, spanning 20% of the piece (45 measures), Ligeti sets up a predictable dual two-part phrase structure (Table 11 refers) with the use of the materials (P/Q, R/S etc) imposed on the ostinato. In the following brief polyrhythmic sub-section A^2, the established phrase structure is altered through the expansion of the consequent phrases S1 (m.50) and S2 (m.59) (see Appendix D, the reduced score). Further, the occurrence of the R/S material in sub-section A^2, which is more "mobile" with the occurrence of eighth-note rhythms, relieves another static rhythmic element (the chordal and less "mobile" P/Q material with mostly quarter and dotted quarter-note rhythms) from the previous A^1 section. Thus, a subtle tension is generated in the brief A^2 sub-section, the first polyrhythmic section of the piece, with the combined effect of phrase expansions, contrasting rhythmic nature of the R/S material and the attendant polyrhythm.
2. The polyrhythmic sub-section B^2 is set apart from its parallel polyrhythmic sub-section A^2 and other sub-sections with the introduction of contrasting elements. The phrase structure Ligeti sets up in sub-section A^1, altered in sub-section A^2, and restored in sub-section B^1 is altered in a different way in sub-section B^2. Generally, phrases in *Fanfares* are based on the materials (P/Q, R/S etc) imposed on the ostinato. The antecedent and consequent phrases with their internal sub-phrases (x/y) end with a dotted quarter-note (at times a quarter-note). The antecedent and consequent phrases are also separated by a dotted quarter-note rest. For example, see mm.2-8 of the reduced score (Appendix D). However in sub-section B^2, this spacing configuration is altered in the ten phrases (rp5, sq5, rp6, sq6, rp7, sq7, rp8, sq8, rp9 and sq9) from m.116 to m.133 (see the reduced score, Appendix D). The phrases eliminate the gaps that separate the phrases and sub-

phrases in other sections of the piece. It is observed that these ten phrases coincide with section PR II (outlined by the polyrhythmic structure) where the highest PD values (67%) of the section occurs. Thus, with the phrase structure alteration coupled with a higher *degree of polyrhythm* (compared to section PR I with the highest PD value of 26%) and a different rhythmic component (a mixture of eighth-note and quarter-note rhythms) in rp/sq materials as contrasting elements, a degree of subtle tension different from that found in sub-section A^2 is generated in sub-section B^2.

From the preceding discussion, it is apparent that polyrhythms do not exist in *Fanfares* as a mere stylistic element but as a structural tool and controlled rhythmic device. Ligeti's use of polyrhythm yields musical contrast and sectional tension that combines with other musical elements to shape the structure of the piece.

4.3 ANALYSIS III – *THEMES FROM CHAKA* (AKIN EUBA)

I will reference the relevant analytical materials from Euba's article[52], "Themes from Chaka No.1: A Pianistic Realization of African Polyrhythm," in my analysis. In this article, the composer identifies the main themes and rhythmic patterns (with their African sources) of the piano piece.

[52] Akin Euba, "A Pianistic Realization of African Polyrhythm," in *Towards an African Pianism: Keyboard Music of Africa and the Diaspora*. Vol. 1, ed. Cynthia Kimberlin and Akin Euba (California: MRI Press, 2005), 113 - 122.

4.3.1 Step I – Identification of the Formal Structure

The four sections of *Themes from Chaka* are delineated by the occurrence of the material Euba[53] calls the "conscience theme." While the theme is presented as the first four measures of the piece (Section A), the theme is stated as the opening and closing materials of Section B (mm. 191-194 & 370-377). The theme also concludes Section C (mm.408-413). The formal sections of the piece are summarized below:

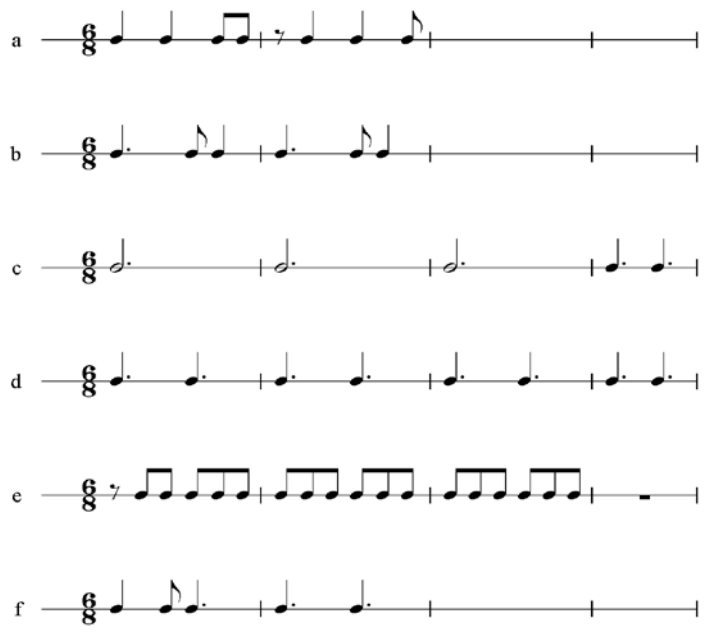
Table 16: Formal Divisions (*Themes from Chaka*)

SECTION	A	B	C	D
DURATION (# of measures)	190 (1-190)	187 (191-377)	36 (378-413)	81 (414-494)

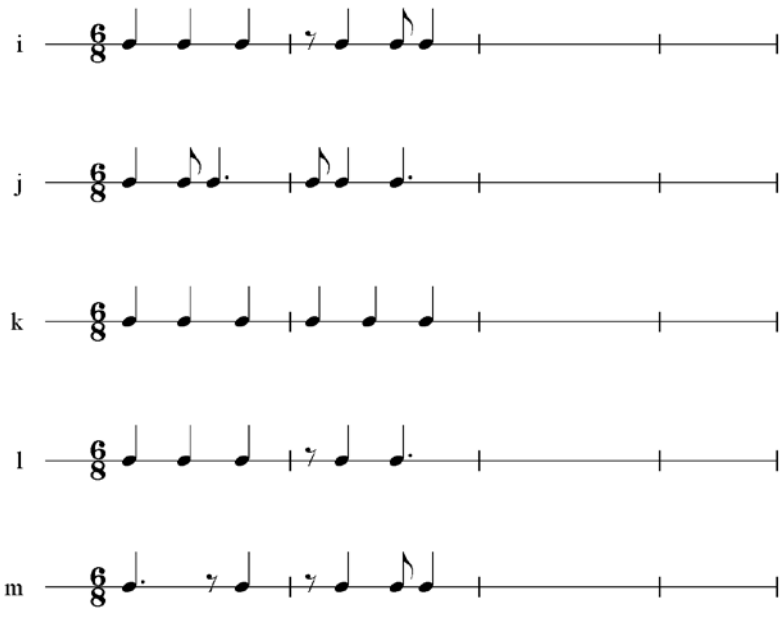
4.3.2 Step II – Identification of Polyrhythmic Sections & Representative PRBs

Reductions of the main rhythmic patterns that combine in different ways to form polyrhythms are shown below (Examples 20 to 23).

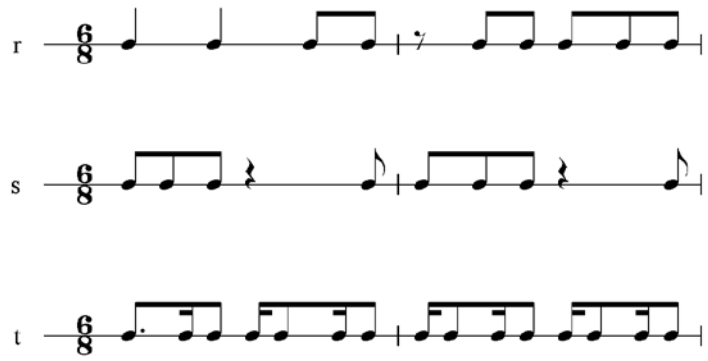
[53] Euba, "A Pianistic Realization of African Polyrhythm," 117.



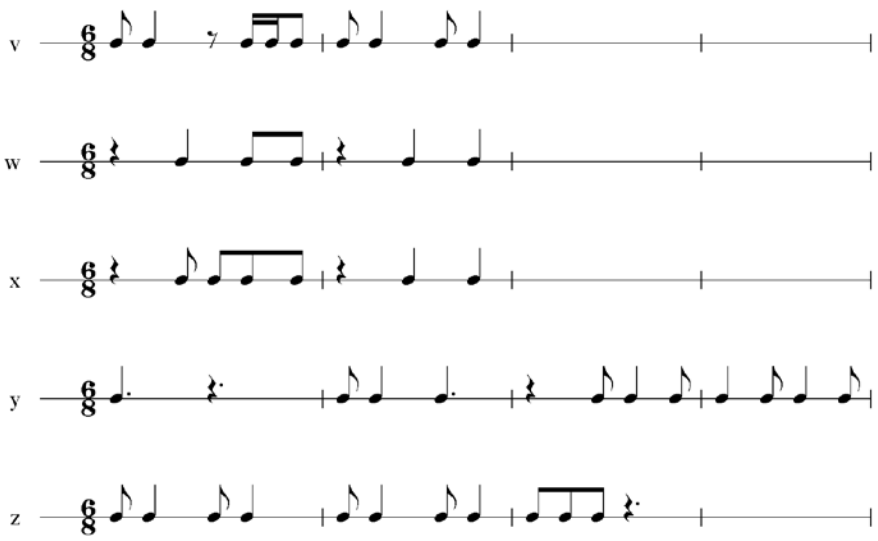
Example 20: Section A Rhythmic patterns (*Chaka*)



Example 21: Section B Rhythmic patterns (*Chaka*)



Example 22: **Section C Rhythmic patterns (*Chaka*)**



Example 23: **Section D Rhythmic patterns (*Chaka*)**

These patterns have a uniform *pulse*, the dotted quarter-note (`q.`). The *minimal operational values* are eighth-note (`e`) in Sections A and B, and the sixteenth-note (`x`) in sections C and D. Some of the patterns are variants of other patterns. For instance, pattern j is a variant of pattern b;

pattern l is a variant of pattern i; pattern y is a variant of pattern z etc. The patterns are mostly syncopated in nature.

Other materials[54] (motifs and themes) from the opera, *Chaka,* that occur in the piano work include the following:

- Conscience theme (mm. 1 – 4)
- Soloistic motifs: Examples are found at the following measures:
    i. mm. 73 – 76: occurs in polyrhythmic and non-polyrhythmic combinations
    ii. mm. 96 – 103 (RH): occurs in polyrhythmic structure
    iii. mm. 114 – 117 (RH): occurs in polyrhythmic structure
    iv. mm. 124 – 127 (RH): occurs in polyrhythmic structure
    v. mm. 201 – 204: polyrhythmic in nature
- Song Materials: These are marked as PM 1a and PM 1b on the score (from page 270). They occur within the polyrhythmic blocks.

The PRBs[55] representative of different sections of *Themes from Chaka* are shown in Appendix C. *Attacks* are the only *rhythmic marks* used for the PRB reductions. In addition, the way rhythmic patterns combine relative to the meter is considered in the choice of PRBs. For instance, the rhythmic patterns 'a' and 'c' (Example 20 above) combine differently at measures 61 and 79. Both instances are incorporated in the data used for PD calculation as they can potentially yield different PD values.

[54] Identified by Euba in his analysis of the piece.
[55] The number of PRBs selected per section is essentially a function of the attendant polyrhythmic activity/non-activity (with emphasis on where the major changes occur) and not necessarily reflective of the length/duration of the sections. However, an effort is made to match the number of PRBs in proportion to the individual length/duration of the sections.

4.3.3 Step III – PD Calculation

n^3 = # of *interweaving positions* in a specific PRB

n^4 = # of positions with at least a *rhythmic mark* in a specific PRB

$PD^2 = n^3 / n^4 \times 100\%$

The PD^2 values for each of the sectional PRBs are calculated as follows:

Table 17: **PD^2 for Section A (*Themes from Chaka*)**

SECTION A					
PRB	**RHYTHMIC PATTERN(S)**	**MEASURE**	**n^3**	**n^4**	**PD^2**
1	[Conscience Theme]	1	-	-	0%
2	[b+c]	45	7	12	58%
3	[d]	53	-	-	0%
4	[e+a']	57	5	11	45%
5	[c]	59	-	-	0%
6	[a+c]*	61	7	9	78%
7	[c]	63	-	-	0%
8	[e+a+c]	69	5	12	42%
9	[Soloistic Motif]	73	-	-	0%
10	[a+c]*	79	7	8	88%
11	[Soloistic Motif]	83	-	-	0%
12	[f+b]	91	3	7	43%
13	[e+b]	93	7	12	58%
14	[a]	104	-	-	0%
15	[f, e + c]	118	13	17	76%
16	[c]	133	-	-	0%
17	[a+c]*	141	7	9	78%
18	[Soloistic Motif]	167	-	-	0%
19	[b+c, d]	183	12	22	55%

Table 18: **PD^2 for Section B (*Themes from Chaka*)**

SECTION B					
PRB	**RHYTHMIC PATTERN(S)**	**MEASURE**	**n3**	**n4**	**PD^2**
20	[Conscience Theme]	191	-	-	0%
21	[m + k]	217	5	8	63%
22	[i]	221	-	-	0%
23	[l+b]	235	5	8	63%
24	[m]	239	-	-	0%
25	[l+j]	243	3	7	43%
26	[c]	245	-	-	0%
27	[m+c]	249	9	12	75%
28	[l + d]	253	5	7	71%
29	[Soloistic Motif]	265	-	-	0%
30	[i+b]	279	4	8	50%
31	[m+b]	280	3	7	43%
32	[m]	283	-	-	0%
33	[m, i+i']	285	10	15	67%
34	[Soloistic Motif]	289	-	-	0%
35	[m+j]	295	5	8	63%
36	[m]	297	-	-	0%
37	[b+c]	301	7	11	64%
38	[d]	305	-	-	0%
39	[Solo 4 + m]	307	9	11	82%
40	[Solo 4 +i]	313	10	12	83%
41	[i]	337	-	-	0%
42	[b + c]	343	8	13	62%
43	[Soloistic Motif]	355	-	-	0%
44	[b'+ Conscience Theme (j)]	369	23	30	77%
45	[Conscience Theme]	376	-	-	0%

Table 19: **PD^2 for Section C (*Themes from Chaka*)**

SECTION C					
PRB	**RHYTHMIC PATTERN(S)**	**MEASURE**	**n^3**	**n^4**	**PD^2**
46	[r + s]	380	5	11	45%
47	[t]	384	-	-	0%
48	[t + r]	386	13	18	72%
49	[Conscience Theme]	408	-	-	0%

Table 20: **PD^2 for Section D (*Themes from Chaka*)**

SECTION D					
PRB	**RHYTHMIC PATTERN(S)**	**MEASURE**	**n^3**	**n^4**	**PD^2**
50	[v+y]	421	15	22	68%
51	[v+(w,x)]	427	17	23	74%
52	[y+(w,x)]	431	24	27	89%
53	[v+(w,z)]	437	10	21	48%
54	[v+(w,x,z)]	443	15	25	60%
55	[Song+(w+y+w)]	450	10	21	48%
56	[Song+z,(y+x)]	458	11	24	46%
57	[Song+(w,x+y)]	463	9	20	68%
58	[Song+z, (y'+x)]	466	7	11	64%
59	[Song+z]	475	9	19	47%
60	[v + (y +w),z]	479	13	23	57%
61	[v+(y,x,z)]	483	17	24	71%
62	[v+z,w)]	486	13	20	65%
63	[v+(x,y)]	493	9	13	69%

4.3.4 Step IV – Plotting of PD Graph[56]

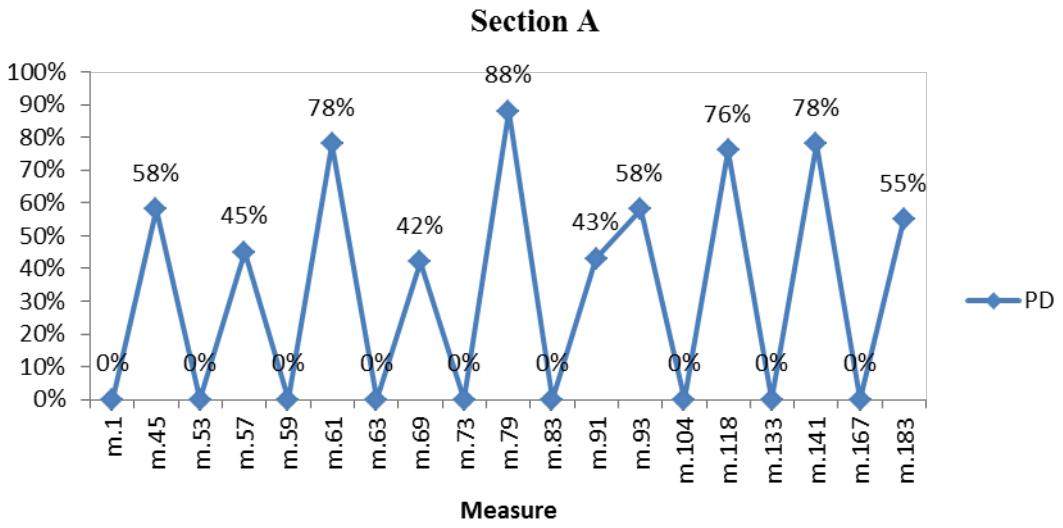


Figure 16: PD Distribution for Section A (*Themes from Chaka*)

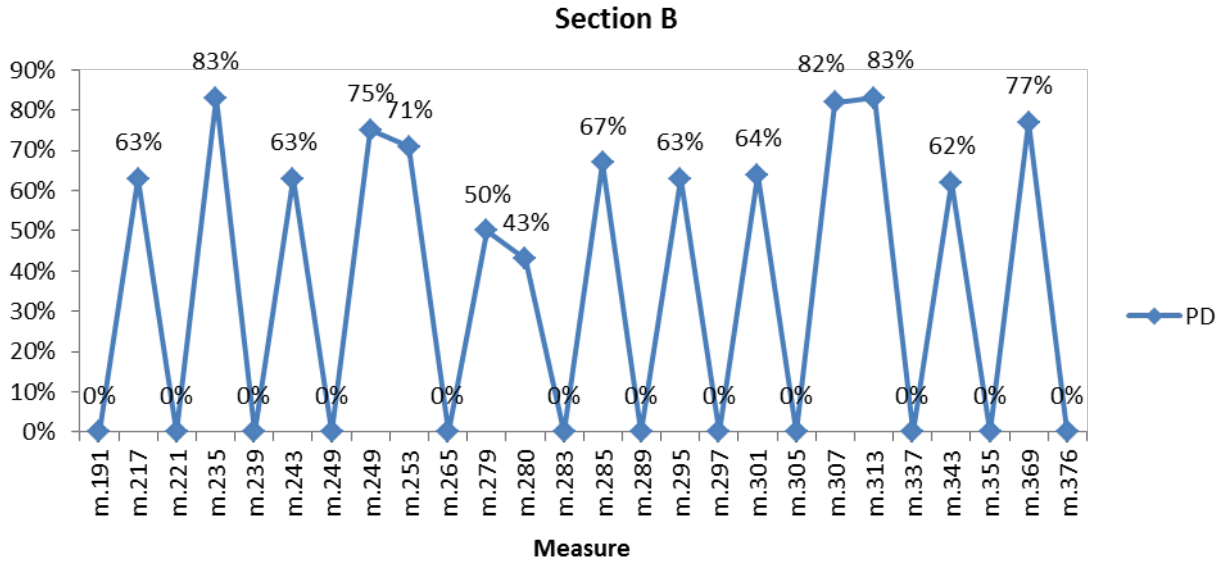


Figure 17: **PD Distribution for Section B (*Themes from Chaka*)**

[56] The number of data points in each section is not perfectly reflective of the length/duration of the section. As stated in Section 2.3.2, the representative PRBs for each section are selected with a focus on where the major polyrhythmic combinations or changes occur.

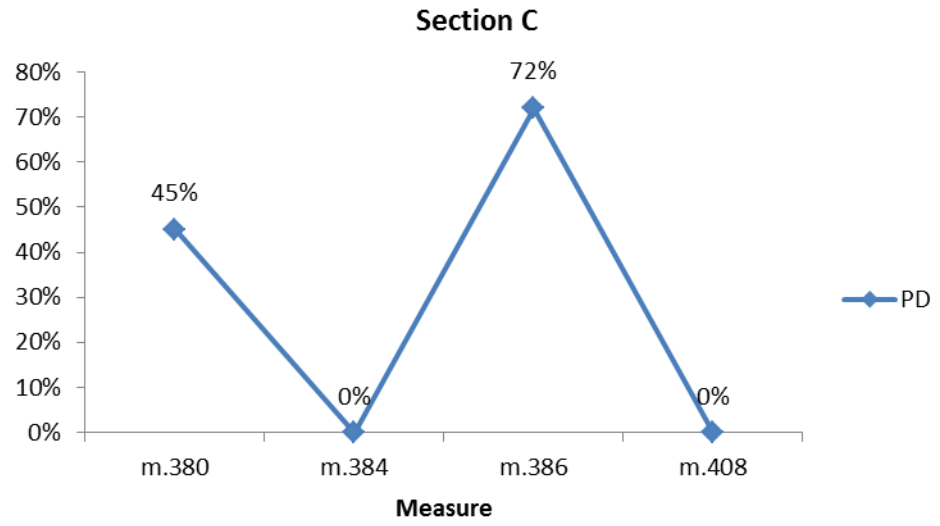


Figure 18: **PD Distribution for Section C (*Themes from Chaka*)**

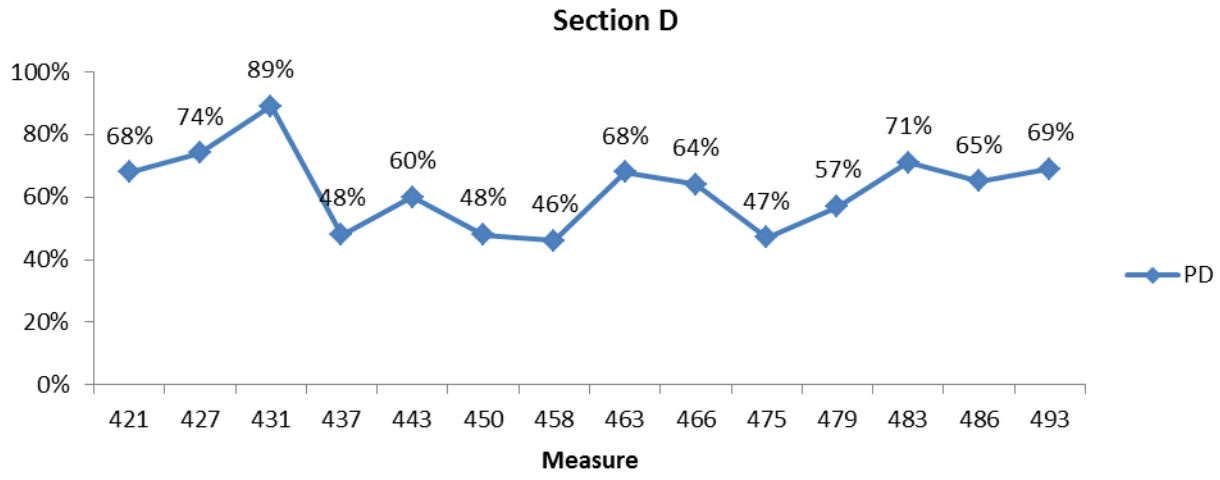


Figure 19: **PD Distribution for Section D (*Themes from Chaka*)**

4.3.5 Step V – Observations

1) As observed earlier, the *pulse* is the dotted quarter-note (`q.`) in the 6/8 sections. The *minimal operational values* are the eighth-note (`e`) for sections A and B, and the sixteenth-note (`x`) for sections C and D.
2) The quarter-note (`q`) is the *pulse* in the 4/4 sections (mm.1, 191, 376 and 411). The sixteenth-note (`x`) is the *minimal operational value.*
3) There is no simple proportional relationship between the *pulses* of the 6/8 and 4/4 sections.
4) The polyrhythmic structure in sections A, B and C is based on the superposition of no more than two rhythmic patterns[57] (see Tables 16 to 18). Section D however employs the superposition of three rhythmic layers within its polyrhythmic structure (see Table 19).
5) The first three sections are characterized by alternating polyrhythmic and non-polyrhythmic sections. From Figures 13 to 15 (above), the alternation, which occurs consistently, is represented by the alternating occurrence of non-zero PD value (polyrhythm) and zero PD value (no polyrhythm). The distribution of the PD values thus plot a zigzag pattern with a 0% value at the bottom of the pattern.
6) In contrast to sections A, B and C, the final section is essentially polyrhythmic throughout.

[57] The only exception to this occurs at m.69 where there are three rhythmic patterns: 'e', 'a' and 'c'. However, patterns 'e' and 'a' essentially come across as a single rhythmic unit. Thus, the two measures (m.69 – 70) more or less exist as a superposition of two rhythmic patterns.

4.3.6 Step VI – Discussion & Conclusion

Whereas rhythmic patterns from specific African music traditions abound in *Themes from Chaka,* the work lacks certain characteristics of traditional African music models:

- There is no consistent isochronous *pulse* with a uniform *minimal operational value*.
- There is no extensive use of strict ostinato

However, the piano work employs the superposition of rhythmic pattern with the use of 'localized' ostinatos to create polyrhythms.

The graphs above in Figures 13 to 16 show that the attendant polyrhythmic structure is simply based on the alternating occurrence and non-occurrence of polyrhythm (the zigzag pattern). However, the varying *degree of polyrhythm* is of no significance. That is, the PD values at the points where polyrhythms occur, whether 40% or 80%, are of no structural importance. The significant point is that a musical norm is established in sections A to C, spanning over 400 measures (out of a total of 497 measures) with the alternating polyrhythmic and non-polyrhythmic sections. The climax of the piece, section D (spanning 81 measures), is thus defined by a departure from this norm. This departure, i.e., the employment of relatively polyrhythmic stability, can be described as the compositional goal of the piece. It is fortified with the superposition of three rhythmic layers, contrary to the previous sections that are characterized by one or two rhythmic layer(s). In addition the song material (marked PM 1a and PM 1b) styled in a "call and response" structure enhances the climactic effect of section D as it is serves as a source of variety.

5.0 SUMMARY

As observed before, polyrhythm is not exclusive to African music. However, what is different about African polyrhythm is its co-existence with African rhythms. To this Agawu[58] says, "What perhaps distinguishes the African usages [of polyrhythm] is the degree of repetition of the constituent patterns, the foregrounding of repetition as a modus operandi. If this counts as a difference, it is one of degree, not of kind." Euba[59] further adds, "…African polyrhythm is based on lines that have minimal melodic interest. In other words, the instruments that play polyrhythmic parts in African ensembles are usually single-toned or double-toned, and melodies heard by listeners are composite (hocket-like) rather than real melodies." As observed in this study, the three piano works, *Fanfares, Themes from Chaka* and *Ukom* make use of elements of African rhythmic structure (ostinato, repetition of rhythmic patterns, the use of the isochronous pulse temporal system, absence of measure system based on an accentual matrix etc.). It is within this rhythmic system that the attendant polyrhythms occur. Beyond this is the strategic use of polyrhythm in combination with other elements to generate the individual structures that define musical coherence on a larger level:

1. *Ukom* by Uzoigwe is minimalist in nature, especially in terms of rhythmic and pitch content. The (fairly) consistent texture, limited pitch content and rhythmic material would

[58] Kofi Agawu, *Representing African Music* (London: Routledge, 2003), 81.
[59] Euba, "A Pianistic Realization of African Polyrhythm," 119.

ordinarily have a high potential for musical stasis. However, Uzoigwe finds ways to create musical contrast, making the piece unfold in a dynamic manner. One of the techniques is the strategic use of polyrhythms to shape the piece. Fundamentally, the steady occurrence of polyrhythms holds the piece together, providing musical coherence. Then the varying *polyrhythmic degrees* (PD) articulate the structural sections of the piece. Furthermore, Uzoigwe carefully controls his use of polyrhythms to articulate the climactic sections (main and secondary) of the work.

2. Similar to *Ukom*, the unrelenting ostinato and the limited rhythmic system (essentially based on eighth, quarter and dotted quarter-note rhythms) in *Fanfares* imply uniformity and musical stasis. However the underlying polyrhythmic structure, operating at two levels and in combination with other musical elements, provides a necessary element of contrast. Moreover, the ensuing contrasting materials occur in a structured way that gives the piece a dynamic shape.
3. In the case of *Themes from Chaka*, the system of alternation between the polyrhythmic and non-polyrhythmic sections, established right from the start and sustained over 80% of the work serves as the "compositional rule" in the piece. The deviation from this rule serves as the "compositional goal" of the piece. Thus, the polyrhythmic structure plays a crucial role in defining musical coherence and in the realization of the piece's climax.

With the analytical tool defined for the purpose of this study, *polyrhythmic degree* (PD), the "quantity of polyrhythm" is investigated in the three pieces. We see from the foregoing analysis, that the distribution of the varying *polyrhythmic degrees* (PD values) actually plays a role in shaping the structure of *Fanfares* and *Ukom*. In the case of *Themes from Chaka* it is the

alternating presence and absence of polyrhythms that contribute to the structure. Thus, one can deduce that the controlled use of polyrhythm can possibly yield or contribute to musical structure in art music composition with the ***conscious*** use of one or both techniques:

- the control of *polyrhythmic degree* or the quantity of polyrhythm
- the presence or absence of polyrhythms

Using the three pieces studied in this dissertation as models, these two techniques offer a compositional resource that can be further explored by those willing to apply Africa Pianism as a compositional concept. Further, in applying the techniques within the principle of African Pianism, composers can focus on polyrhythm within the context of African rhythms. Thus, at a deeper level of rhythmic construction in writing for the "African" piano, composers can focus on:

- rhythmic figures with a de-emphasis on pitch, downplaying the harmonic tendencies of the piano to project its percussiveness
- the inherent character of rhythmic figures and their potential to contribute to a polyrhythmic texture
- periodicity, with the emphasis on the individual durations of rhythmic figures and their differing superpositions within a period to create or eliminate polyrhythm

In conclusion, I acknowledge the viability of polyrhythm (with or without other musical elements) as a rhythmic device that can be employed to create musical contrast as well as create tension and climactic (or anti-climactic) effects. Hence, while polyrhythm can function at a stylistic level, it can be employed as a structural device that can help define musical coherence. Furthermore, in situating polyrhythm within the confines of African rhythms, there exists a ready resource, worthy of further investigation, as an integral feature of African Pianism.

APPENDIX A

POLYRHYTHMIC BLOCKS – *UKOM*

m.1

1	2	3	4	5	6	7	8	9	10	11	12
x	x		x	x		x	x		x	x	

Figure 20: PRB 1 (*Ukom*)

m.5

1	2	3	4	5	6	7	8	9	10	11	12
		>						>			
x	x		x			x	x		x	x	

m.6

1	2	3	4	5	6	7	8	9	10	11	12
		>						>			
x	x		x			x	x		x	x	

Figure 21: PRB 2 (*Ukom*)

m.13

1	2	3	4	5	6	7	8	9	10	11	12
		>						>			
x	x		x	x		x	x		x	x	

m.14

1	2	3	4	5	6	7	8	9	10	11	12
		>						>			>
x	x		x			x	x		x	x	

m.15

1	2	3	4	5	6	7	8	9	10	11	12
		>			>			>			>
x	x		x			x	x		x		

m.16

1	2	3	4	5	6	7	8	9	10	11	12
		>									
x	x		x	x		x	x		x		

Figure 22: PRB 3 (*Ukom*)

m.29

1	2	3	4	5	6	7	8	9	10	11	12
		>			>			>			>
x	x		x	x		x	x		x	x	

m.30

1	2	3	4	5	6	7	8	9	10	11	12
		>			>						
x	x		x			x	x		x	x	

m.31

1	2	3	4	5	6	7	8	9	10	11	12
		>			>			>			>
x	x		x			x	x		x		

m.32

1	2	3	4	5	6	7	8	9	10	11	12
		>			>						
x	x		x	x		x	x		x		

Figure 23: PRB 4 (*Ukom*)

m.33

1	2	3	4	5	6	7	8	9	10	11	12
		>			>			>			
x	x		x	x		x	x		x	x	

m.34

1	2	3	4	5	6	7	8	9	10	11	12
		>			>			>			
x	x		x			x	x		x	x	

m.35

1	2	3	4	5	6	7	8	9	10	11	12
		>			>						
x	x		x			x	x		x		

m.36

1	2	3	4	5	6	7	8	9	10	11	12
		>			>			>			
x	x		x	x		x	x		x		

Figure 24: PRB 5 (*Ukom*)

m.43

1	2	3	4	5	6	7	8	9	10	11	12
		>						>			
x	x		x			x	x		x		

m.44

1	2	3	4	5	6	7	8	9	10	11	12
x	x		x	x		x	x		x		

Figure 25: PRB 6 (*Ukom*)

m.47 m.48

1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
	x		x		x		x		x		x		x		x		x		x		x		x
>		>		>		>		>		>		>		x		x		>		x		x	

Figure 26: PRB 7 (*Ukom*)

m.57 m.58

1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
>	>					>	>					>	>					>	>				
		X		X	X			X		X	X			X		X	X			X		X	X

Figure 27: PRB 8 (*Ukom*)

m.59 m.60

1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
>	>		>			>	>		>			>	>		>			>	>		>		
		X		X	X			X		X	X			X		X	X			X		X	X

Figure 28: PRB 9 (*Ukom*)

m.65 m.66

1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
>	>		>	>			>	>				>	>		>	>			>	>			
		X		X	X			X		X	X			X		X	X			X		X	X

Figure 29: PRB 10 (*Ukom*)

m.69													m.70											
1	2	3	4	5	6	7	8	9	10	11	12		1	2	3	4	5	6	7	8	9	10	11	12
x	x		x	X		x	x		x	X			x	x		x	X		x	x		x	X	
		X		X	X			X		X	X				X		X	X			X		X	X

Figure 30: PRB 11 (*Ukom*)

					m.74					
1	2	3	4	5	1	2	3	4	5	6
X	X		X		X		X		X	X
X	X		X		X		X		X	X

Figure 31: PRB 12 (*Ukom*)

PRB 13

m.81												m.82											
1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
		>			>																		
x	x		x			x	x		x	x		x	x		x			x	x		x	x	

m.83												m.84											
1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
		>			>																		
x	x		x			x	x		x			x	x		x	x		x	x		x		

Figure 32: PRB 13 (*Ukom*)

m.89

1	2	3	4	5	6	7	8	9	10	11	12
		>			>			>			>
x	x		x	x		x	x		x	x	

m.90

1	2	3	4	5	6	7	8	9	10	11	12
		>			>			>			>
x	x		x			x	x		x	x	

m.91

1	2	3	4	5	6	7	8	9	10	11	12
		>			>			>			>
x	x		x			x	x		x		

m.92

1	2	3	4	5	6	7	8	9	10	11	12
x	x		x	x		x	x		x		

Figure 33: PRB 14 (*Ukom*)

m.105

1	2	3	4	5	6	7	8	9	10	11	12
									x		x
x		x		x		x		x		x	

Figure 34: PRB 15 (*Ukom*)

m.108

1	2	3	4	5	6	7	8	9	10	11	12
x	x		x	x		x	x		x		x
x		x		x		x		x		x	

Figure 35: PRB 16 (*Ukom*)

m.111

1	2	3	4	5	6	7	8	9	10	11	12
	x			x		x	x		x		x
x		x	x	x	x	x		x	x		x
x		x		x		x		x		x	

Figure 36: PRB 17 (*Ukom*)

m.114

1	2	3	4	5	6	7	8	9	10	11	12
	x			x		x		x	x	x	
x		x	x	x	x	x					
x		x		x		x		x		x	

Figure 37: PRB 18 (*Ukom*)

m.115

1	2	3	4	5	6	7	8	9	10	11	12
x	x	x		x	x	x		x	x	x	
x		x		x		x		x		x	

Figure 38: PRB 19 (*Ukom*)

m.118

1	2	3	4	5	6	7	8	9	10	11	12
		>			>						
x	x		x	x		x	x		x	x	

m.119

1	2	3	4	5	6	7	8	9	10	11	12
x	x		x			x	x		x	x	

m.120

1	2	3	4	5	6	7	8	9	10	11	12
		>			>						
x	x		x			x	x		x		

m.121

1	2	3	4	5	6	7	8	9	10	11	12
		>						>			
x	x		x	x		x	x		x		

Figure 39: PRB 20 (*Ukom*)

m.123

1	2	3	4	5	6	7	8	9	10	11	12
>	>		>	>		>	>		>	>	
>		>	>		>	>		>	>		>

Figure 40: PRB 21 (*Ukom*)

m.125

1	2	3	4	5	6	7	8	9	10	11	12
x	x		x	x		x	x		x	x	
>		>		x	x			>		x	x

Figure 41: PRB 22 (*Ukom*)

m.127 m.128

1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
x		x		x		x		x		x		x		x		x		x	x	x	x		
		>		x	x			>		x	x			>		x	x			>		x	x

Figure 42: PRB 23 (*Ukom*)

m.129

1	2	3	4	5	6	7	8	9	10	11	12
>	>		>	>		>	>		>	>	
>		>	>		>	>		>	>		>

Figure 43: PRB 24 (*Ukom*)

m.132 m.133

10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
	x		x	x		x	x		x	x	x	x	x	x	x	x		>	x		x	x		>	x	
>		>	>		>	>		>	>		>	>		>	>		>	>		>	>		>	>		>

m.134 m.135

1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6
x	x		>	x		x	x		>	x		x	x		x	x	
>		>	>		>	>		>	>		>	>		>	>		>

Figure 44: PRB 25 (*Ukom*)

m.147

1	2	3	4	5	6	7	8	9	10	11	12
>	>		>	>		>	>		>	>	
>		>	>		>	>		>	>		>

Figure 45: PRB 26 (*Ukom*)

m.149

1	2	3	4	5	6	7	8	9	10	11	12
x	x		x	x		x	x		x	x	
>		>		x	x			>		x	x

Figure 46: PRB 27 (*Ukom*)

PRB 30

m.152

1	2	3	4	5	6	7	8	9	10	11	12
x		x		x		x		x		x	
		>		x	x			>		x	x

m.153

1	2	3	4	5	6	7	8	9	10	11	12
x		x		x		x	x	x	x		
>		>		x	x			>		x	x

m.154

1	2	3	4	5	6	7	8	9	10	11	12
		x		x		x	x		>	x	
x		x		x	x			x		x	x

m.155

1	2	3	4	5	6	7	8	9	10	11	12
x	x		x	x		x	x		x	X	
x		x		x	x			x		x	x

Figure 47: PRB 28 (*Ukom*)

m.156

1	2	3	4	5	6	7	8

Figure 48: PRB 29 (*Ukom*)

m.157

1	2	3	4	5	6	7	8	9	10	11	12
		>			>			>			
x	x		x			x	x		x	x	

m.158

1	2	3	4	5	6	7	8	9	10	11	12
		>						>			
x	x		x			x	x		x	x	

m.159

1	2	3	4	5	6	7	8	9	10	11	12
		>			>			>			
x	x		x			x	x		x		

m.160

1	2	3	4	5	6	7	8	9	10	11	12
		>						>			
x	x		x	x		x	x		x		

Figure 49: PRB 30 (*Ukom*)

m.165

1	2	3	4	5	6	7	8	9	10	11	12
		>			>			>			
x	x		x	x		x	x		x	x	

m.166

1	2	3	4	5	6	7	8	9	10	11	12
		>			>			>			
x	x		x			x	x		x	x	

m.167

1	2	3	4	5	6	7	8	9	10	11	12
		>			>			>			>
x	x		x			x	x		x		

m.168

1	2	3	4	5	6	7	8	9	10	11	12
		>			>			>			
x	x		x	x		x	x		x		

Figure 50: PRB 31 (*Ukom*)

m.173

1	2	3	4	5	6	7	8	9	10	11	12
		>			>			>			>
x	x		x	x		x	x		x	x	

m.174

1	2	3	4	5	6	7	8	9	10	11	12
		>			>			>			
x	x		x			x	x		x	x	

m.175

1	2	3	4	5	6	7	8	9	10	11	12
		>						>			
x	x		x			x	x		x		

m.176

1	2	3	4	5	6	7	8	9	10	11	12
		>									
x	x		x	x		x	x		x		

Figure 51: PRB 32 (*Ukom*)

m.179

1	2	3	4	5	6	7	8	9	10	11	12
	x	x	x	x	x	x	x	x	x	x	x
x	x	x	x	x	x	x	x	x	x	x	x

180

1	2	3	4	5	6	7	8	9	10	11	12
x	x	x	x	x	x	x	x	x	x	x	x
x	x	x	x	x	x	x	x	x	x	x	x

181

1	2	3	4	5	6	7	8	9	10	11	12

182

1	2	3	4	5	6	7	8	9	10	11	12

Figure 52: PRB 33(*Ukom*)

APPENDIX B

POLYRHYTHMIC BLOCKS – *FANFARES*

[Phrase P1]

m.2								m.3								m.4							
1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
>			x		x			x					>			x			x		x		
>			>		>			>			>		>			>			>		>		

Figure 53: PRB 1 (*Fanfares*)

[Phrase Q1]

					m.6								m.7								m.7		
4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3
>		x			x			x					>			x		x			x		
>		>			>			>		>			>			>		>			>		

Figure 54: PRB 2 (*Fanfares*)

[Phrase P2]

					m.11								m.12								m.13		
4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3
>		x			x			x					>			x		x			x		
>		>			>			>		>			>			>		>			>		

Figure 55: PRB 3 (*Fanfares*)

[Phrase P3]

			m.19								m.20								m.21				
6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5
>			x			x		x						>		x			x			x	
>			>			>		>			>			>		>			>			>	

Figure 56: PRB 4 (*Fanfares*)

[Phrase P5]

					m.38								m.39								m.40		
4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3
>		x			x			x					>			x		x			x		
>		>			>			>		>			>			>		>			>		

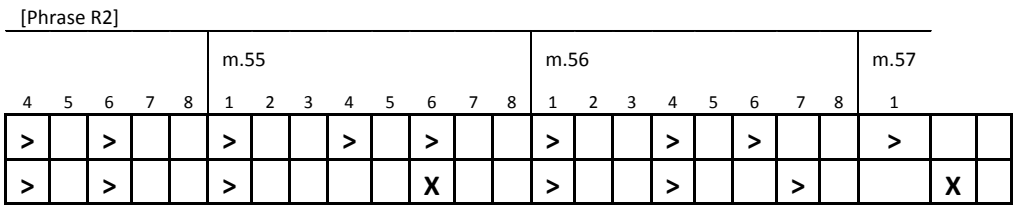
Figure 57: PRB 5 (*Fanfares*)

[Phrase S1]

					m.50								m.51							
4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
>			>		>								>			>			>	
>		>			>			>		>			>			>		>		

m.52								m.53							
1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
	>			>			>			>					
>			>		>			>			>		>		

Figure 58: PRB 6 (*Fanfares*)


[Phrase R2]
m.55
m.56
m.57
4 5 6 7 8 1 2 3 4 5 6 7 8 1 2 3 4 5 6 7 8 1
> > > >

[Phrase q2]

			m.84								m.85								m.86				
6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5
>			>			>		>			>			>		>			>			>	
x			x			x		x			x			x		x			x			x	

Figure 62: PRB 10 (*Fanfares*)

[Phrase rp1]

m.88								m.89								m.90							
1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
x	x	x	x		x			x					x	x	x	x			x		x		
>			>		>			>			>		>			>			>		>		

Figure 63: PRB 11 (*Fanfares*)

[Phrase sq3]

			m.105								m.106							
6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
x	x	x	x		x		x		x					>	x	x	x	
>			>			>		>			>			>		>		

m.107								m.108							
1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
x		x		x		>	x	x	>		x		x		
>			>		>			>			>		>		

Figure 64: PRB 12 (*Fanfares*)

PRB 9

[Phrase sq5]

			m.118								m.119		
6	7	8	1	2	3	4	5	6	7	8	1	2	3
	>	x		>		>		>	x	x	>		>
>			>			>		>			>		

Figure 65: PRB 13 (*Fanfares*)

[Phrase sq6]

						m.122							
3	4	5	6	7	8	1	2	3	4	5	6	7	8
>		x	>		>			x	x	>		>	
	>		>			>			>		>		

Figure 66: PRB 14 (*Fanfares*)

[Phrase sq7]

			m.125								m.126		
6	7	8	1	2	3	4	5	6	7	8	1	2	3
	>	x	x	>		>		>	x	x	>		>
>			>			>		>			>		

Figure 67: PRB 15 (*Fanfares*)

[Phrase rp9]

m.130								m.131				
1	2	3	4	5	6	7	8	1	2	3	4	5
>	x		x		x		>		x			x
>			>		>			>			>	

Figure 68: PRB 16 (*Fanfares*)

[Phrase sq9]

			m.132								m.133							
6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
	>	x		x		>					>			>	x	x		
>			>			>		>			>			>		>		

Figure 69: PRB 17 (*Fanfares*)

[Reset]

m.137								m.138							
1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
>			>		>			>			>		>		
>			>		>			>			>		>		

Figure 70: PRB 18 (*Fanfares*)

[Phrase rp11]

m.145												m.146		
6	7	8	1	2	3	4	5	6	7	8		1	2	3
		>	x	x	x		>	x	x	>			x	
>			>			>		>				>		

Figure 71: PRB 19 (*Fanfares*)

[Phrase rp13]

m.155								m.156							
1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
			>			x				>			x	x	
>			>		>			>			>		>		

Figure 72: PRB 20 (*Fanfares*)

[Phrase rp14]

m.159											m.160								
6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	
>	x		x	x			>	x	x	>	x	x	>		x	x		>	
>			>			>		>			>			>		>			

m.161								m.162		
1	2	3	4	5	6	7	8	1	2	3
x	x	>	x	x	>	x	x	x		
>			>		>			>		

Figure 73: PRB 21 (*Fanfares*)

[Phrase rp15]

					m.166								m.167		
4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3
x		x	x		x			x			x			x	
>		>			>			>		>			>		

Figure 74: PRB 22 (*Fanfares*)

[Phrase sq15]

					m.168								m.169				
4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5
		x	x	x	x	x	x	x			x	x	x	x	x	x	x
>		>			>			>		>			>			>	

Figure 75: PRB 23 (*Fanfares*)

Phrase Q7

					m.175								m.176								m.177		
4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3
	>			>			>			x			x				x		x		x		
>		>			>			>		>			>			>		>			>		

Figure 76: PRB 24 (*Fanfares*)

[Phrase P9]

			m.184								m.185								m.186				
6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5
>			>			>			>					>			>		>			>	
>			>			>		>			>			>		>			>			>	

Figure 77: PRB 25 (*Fanfares*)

[Reset]

m.200							
1	2	3	4	5	6	7	8
>			>		>		
>			>		>		

Figure 78: PRB 26 (*Fanfares*)

[Phrase rp17]

m.202								m.203		
1	2	3	4	5	6	7	8	1	2	3
x	x	x	x		x	x	x	x		
>			>		>			>		

Figure 79: PRB 27 (*Fanfares*)

[Final]

m.200							
1	2	3	4	5	6	7	8
x							

Figure 80: PRB 28 (*Fanfares*)

APPENDIX C

POLYRHYTHMIC BLOCKS – *THEMES FROM CHAKA*

[Conscience Theme]

m.1								m.2								m.3								m.4					
1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6
	x	x		x					x	x		x				x					x	x	x	x					
x	x	x		x				x	x	x		x				x					x	x	x	x					

Figure 81: PRB 1 (*Themes from Chaka*)[60]

[b+c]

m.45						m.46						m.47						m.48					
1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6
x			x	x		x			x	x		x			x	x		x			x	x	
x						x						x						x			x		

Figure 82: PRB 2 (*Themes from Chaka*)

[d]

m.53						m.54					
1	2	3	4	5	6	1	2	3	4	5	6
x			x			x			x		

Figure 83: PRB 3 (*Themes from Chaka*)

[60] The positions (columns) in the PRB do not correspond to the *minimal operational value*, which is the sixteenth-note (𝅘𝅥𝅯) according to definition in Section 2.2.2. Each position corresponds to the eighth-note (♪) for the ease of representation/notation.

[e+a']

m.57						m.58					
1	2	3	4	5	6	1	2	3	4	5	6
	x	x	x	x	x	x	x	x	x	x	x
	x		x		x		x		x		x

Figure 84: PRB 4 (*Themes from Chaka*)

[c]

m.59						m.60					
1	2	3	4	5	6	1	2	3	4	5	6
x						x					

Figure 85: PRB 5 (*Themes from Chaka*)

[a+c]

m.61						m.62						m.63					
1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6
				x	x		x		x		x	x		x			
x						x			x			x					

Figure 86: PRB 6 (*Themes from Chaka*)

[c]

m.63						m.64			
1	2	3	4	5	6	1	2	3	4
x						x			

Figure 87: PRB 7 (*Themes from Chaka*)

[e+c]

m.69						m.70					
1	2	3	4	5	6	1	2	3	4	5	6
	x	x	x	x	x	x	x	x	x	x	x
	x		x		x		x		x		x
x						x			x		x

Figure 88: PRB 8 (*Themes from Chaka*)

[Soloistic Motif]

m.73				m.74				m.75				m.76				m.77		
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3
	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		
x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		

Figure 89: PRB 9 (*Themes from Chaka*)

[a+c]

m.79						m.80					
1	2	3	4	5	6	1	2	3	4	5	6
x		x		x	x		x		x		x
x						x					

Figure 90: PRB 10 (*Themes from Chaka*)

[Soloistic Motif]

m.83				m.84				m.85				m.86				m.87		
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3
	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		
x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		

Figure 91: PRB 11 (*Themes from Chaka*)

[f+b]

m.91						m.92					
1	2	3	4	5	6	1	2	3	4	5	6
x		x	x			x			x		
x			x	x		x			x	x	

Figure 92: PRB 12 (*Themes from Chaka*)

[e+b]

m.93						m.94					
1	2	3	4	5	6	1	2	3	4	5	6
	x	x	x	x	x	x	x	x	x	x	x
x			x	x		x			x	x	

Figure 93: PRB 13 (*Themes from Chaka*)

[a]

		m.104						m.105			
5	6	1	2	3	4	5	6	1	2	3	4
x	x		x		x		x	x		x	

Figure 94: PRB 14 (*Themes from Chaka*)

[f, e + c]

m.119						m.120						m.121						m.122					
1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6
x		x	x			x			x				x	x	x	x	x	x	x	x	x	x	x
x						x						x						x			x		

Figure 95: PRB 15 (*Themes from Chaka*)

[c]

m.133						m.134						m.135						m.136					
1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6
x						x						x						x			x		

Figure 96: PRB 16 (*Themes from Chaka*)

[a+c]

m.141						m.142						m.143					
1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6
x				x	x		x		x		x	x		x			
x						x						x					

Figure 97: PRB 17 (*Themes from Chaka*)

[Soloistic Motif]

m.167						m.168						m.169						m.170					
1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6
		x	x	x				x	x	x				x	x	x		x	x			x	
x		x	x	x				x	x	x				x	x	x		x	x			x	

Figure 98: PRB 18 (*Themes from Chaka*)

[b + c,d]

m.183						m.184						m.185						m.186					
1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6
x	x		x	x		x			x	x		x			x	x		x			x	x	
x						x						x						x			x		x

m.187						m.188						m.189
1	2	3	4	5	6	1	2	3	4	5	6	1
x			x	x		x			x	x		x
x			x		x	x			x			x

Figure 99: PRB 19 (*Themes from Chaka*)

[Conscience Theme]

m.191								m.192								m.193								m.194					
1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6
	x	x		x					x	x		x				x					x	x	x	x					
x	x	x		x				x	x	x		x				x					x	x	x	x					

Figure 100: PRB 20 (*Themes from Chaka*)

[m+k]

m.217						218					
1	2	3	4	5	6	1	2	3	4	5	6
x				x			x		x	x	
x		x		x		x		x		x	

Figure 101: PRB 21 (*Themes from Chaka*)

[i]

m.221						m.222					
1	2	3	4	5	6	1	2	3	4	5	6
x		x		x			x		x	x	

Figure 102: PRB 22 (*Themes from Chaka*)

[l+b]

m.235						236					
1	2	3	4	5	6	1	2	3	4	5	6
x		x		x			x		x		
x			x	x		x			x	x	

Figure 103: PRB 23 (*Themes from Chaka*)

[m]

m.239						m.240					
1	2	3	4	5	6	1	2	3	4	5	6
x				x			x		x	x	

Figure 104: PRB 24 (*Themes from Chaka*)

[l+j]

m.243						244					
1	2	3	4	5	6	1	2	3	4	5	6
x		x		x			x		x		
x		x	x			x	x		x		

Figure 105: PRB 25 (*Themes from Chaka*)

[c]

m.245						m.246						m.247		
1	2	3	4	5	6	1	2	3	4	5	6	1	2	3
x						x						x		

Figure 106: PRB 26 (*Themes from Chaka*)

[m+c]

m.249						250						251						252					
1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6
x				x			x		x	x		x				x			x		x	x	
x						x						x						x			x		

Figure 107: PRB 27 (*Themes from Chaka*)

[l+d]

253						254					
1	2	3	4	5	6	1	2	3	4	5	6
x		x		x			x		x		
x			x			x			x		

Figure 108: PRB 28 (*Themes from Chaka*)

[Soloistic Motif]

m.265				m.266			
1	2	3	4	1	2	3	4
	x	x	x	x	x	x	x
x	x	x	x	x	x	x	x

Figure 109: PRB 29 (*Themes from Chaka*)

[i+b]

m.279						280					
1	2	3	4	5	6	1	2	3	4	5	6
x		x		x			x		x	x	
x			x	x		x			x	x	

Figure 110: PRB 30 (*Themes from Chaka*)

[m+b]

m.281						282					
1	2	3	4	5	6	1	2	3	4	5	6
x				x			x		x	x	
x			x	x		x			x	x	

Figure 111: PRB 31 (*Themes from Chaka*)

[m]

m.281						m.284					
1	2	3	4	5	6	1	2	3	4	5	6
x				x			x		x	x	
x											

Figure 112: PRB 32 (*Themes from Chaka*)

[(m, i)+l']

m.285						286						287						288					
1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6
x				x			x		x	x		x		x		x			x		x	x	
x		x		x				x		x		x				x		x		x			

Figure 113: PRB 33 (*Themes from Chaka*)

[Soloistic Motif]

m.289				m.290				m.291				m.292			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

Figure 114: PRB 34 (*Themes from Chaka*)

[m+j]

m.295						296					
1	2	3	4	5	6	1	2	3	4	5	6
x				x			x		x	x	
x		x	x			x	x		x		

Figure 115: PRB 35 (*Themes from Chaka*)

[m]

m.297					
1	2	3	4	5	6
x				x	

Figure 116: PRB 36 (*Themes from Chaka*)

[b+c]

m.301						302						303						304					
1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6
x									x	x		x			x	x		x			x	x	
x						x						x						x			x		x

Figure 117: PRB 37 (*Themes from Chaka*)

[d]

m.305						m.306					
1	2	3	4	5	6	1	2	3	4	5	6
x											
x			x			x			x		

Figure 118: PRB 38 (*Themes from Chaka*)

[Solo 4+m]

m.307												308											
1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
x			x			x			x			x			x			x			x		
x										x				x				x		x			

Figure 119: PRB 39 (*Themes from Chaka*)

[Solo 4+i]

m.313												314											
1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
x			x			x			x			x			x			x			x		
x				x				x						x				x		x			

Figure 120: PRB 40 (*Themes from Chaka*)

[i]

m.337						m.338					
1	2	3	4	5	6	1	2	3	4	5	6
x		x		x			x		x	x	

Figure 121: PRB 41 (*Themes from Chaka*)

[b'+c]

m.343						344						345						346					
1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6
x	x		x			x	x		x			x	x		x			x	x		x		
x						x						x						x		x	x		

Figure 122: PRB 42 (*Themes from Chaka*)

[Soloistic Motif]

m.355						m.356						m.357						m.358					
1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6
		x	x	x		x	x			x				x	x	x				x	x	x	
		x	x	x		x	x			x				x	x	x				x	x	x	

Figure 123: PRB 43 (*Themes from Chaka*)

[b'+ Conscience Theme (j)]

m.369						370						371						372					
1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6
x	x		x	x		x			x	x		x	x		x			x	x		x	x	
			x		x	x						x		x	x						x		x

373						374						375					
1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6
x			x	x		x			x	x		x			x	x	
x							x	x		x			x	x			

Figure 124: PRB 44 (*Themes from Chaka*)

[Conscience Theme]

m.376								m.377							
1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
x			x	x	x	x	x	x							
x			x	x	x	x	x	x							

Figure 125: PRB 45 (*Themes from Chaka*)

[r+s]

m.380						381					
1	2	3	4	5	6	1	2	3	4	5	6
x		x		x	x		x	x	x	x	x
x	x	x			x	x	x	x			x

Figure 126: PRB 46 (*Themes from Chaka*)

[t]

m.384												m.385											
1		2		3		4		5		6		1		2		3		4		5		6	
			x	x		x	x		x	x		x	x		x	x		x	x		x	x	
			x	x		x	x		x	x		x	x		x	x		x	x		x	x	

Figure 127: PRB 47 (*Themes from Chaka*)

[t+r]

m.386												387											
1		2		3		4		5		6		1		2		3		4		5		6	
			x	x		x	x		x	x		x	x		x	x		x	x		x	x	
x				x				x		x				x		x		x		x		x	

Figure 128: PRB 48 (*Themes from Chaka*)

[Conscience Theme]

m.385												m.386											
1		2		3		4		5		6		1		2		3		4		5		6	
												x	x		x			x	x		x	x	
x	x		x	x		x			x	x								x	x		x	x	

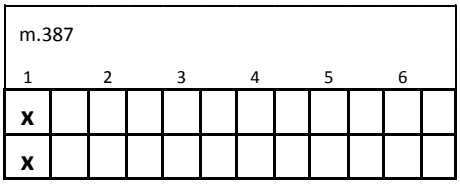


Figure 129: PRB 49 (*Themes from Chaka*)

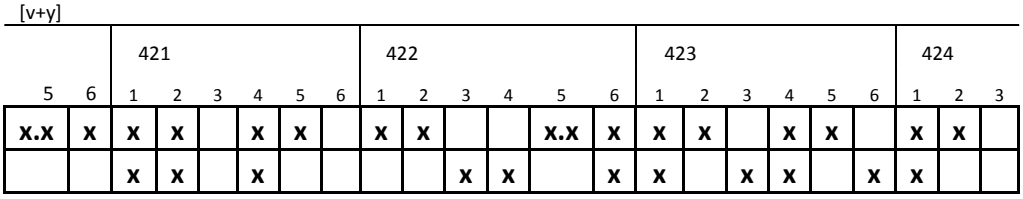


Figure 130: PRB 50 (*Themes from Chaka*)

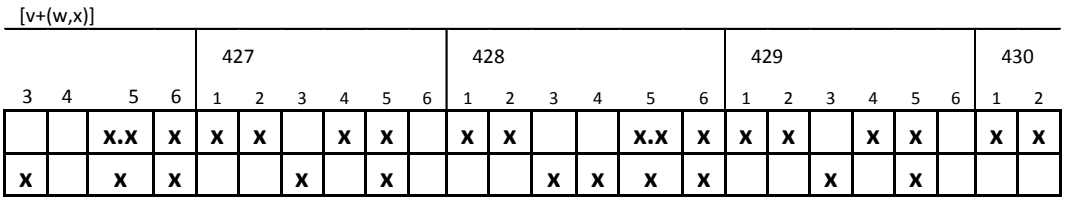


Figure 131: PRB 51 (*Themes from Chaka*)

[y+(w,x)]

				431						432						433					
3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6
				x	x		x					x	x		x	x		x	x		x
x		x	x			x		x				x		x	x			x		x	

434						435					
1	2	3	4	5	6	1	2	3	4	5	6
x						x	x		x		
		x	x	x	x			x		x	

Figure 132: PRB 52 (*Themes from Chaka*)

[v+(w,z)]

				437						438						439						440		
3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3
		x.x	x	x	x		x	x		x	x			x.x	x	x	x		x	x		x	x	
x		x	x							x	x		x	x		x	x		x	x		x	x	x

Figure 133: PRB 53 (*Themes from Chaka*)

[v+(w,x,z)]

				443						444						445						446		
3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3
		x.x	x	x	x		x	x		x	x			x.x	x	x	x		x	x		x	x	x
x		x	x			x		x	x			x	x	x	x				x	x	x	x	x	x

Figure 134: PRB 54 (*Themes from Chaka*)

[Song+(w+y+w)]

				451						452						453						454
3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6	1
			x	x	x	x	x	x	x	x		x	x	x		x	x		x	x	x	x
						x	x		x	x						x	x		x			
x		x	x									x		x	x			x		x		

Figure 135: PRB 55 (*Themes from Chaka*)

[Song+z,(y+x)]

m. 458						459						460						461						462		
1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3
x		x	x	x	x		x	x		x	x	x		x	x	x		x	x		x	x	x	x		
x	x	x				x	x	x			x	x						x	x		x					x
														x	x	x	x			x		x				

Figure 136: PRB 56 (*Themes from Chaka*)

[Song+(w,x+y)]

				463						464						465					
3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6
			x	x	x	x	x	x	x	x		x	x	x		x	x		x	x	x
x		x	x			x		x	x			x	x	x	x	x	x		x		
																		x		x	

Figure 137: PRB 57 (*Themes from Chaka*)

[Song+z, (y'+x)]

466						467						468					
1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6
x		x	x	x	x		x	x	x	x	x	x		x	x	x	
x	x		x	x		x	x		x	x		x	x	x			

469						470					
1	2	3	4	5	6	1	2	3	4	5	6
x	x		x	x	x	x					
x	x		x								
		x		x				x	x	x	x

Figure 138: PRB 58 (*Themes from Chaka*)

[Song+z]

475						476						477						478			
1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4
x		x		x	x	x		x	x	x		x	x		x	x	x	x			
x	x		x	x		x	x		x	x		x			x	x	x	x	x	x	

Figure 139: PRB 59 (*Themes from Chaka*)

[v+(y+w), z]

		479						480						481						482		
5	6	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3
x.x	x	x	x		x	x		x	x			x.x	x	x	x		x	x		x	x	
				x	x		x	x						x	x		x					
										x		x	x			x		x		x	x	x

Figure 140: PRB 60 (*Themes from Chaka*)

[v+(y,x,z)]

		483						484						485						486		
5	6	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3
x.x	x	x	x		x	x		x	x			x.x	x	x	x		x	x		x	x	
				x	x		x	x														
										x	x	x	x			x		x		x	x	x

Figure 141: PRB 61 (*Themes from Chaka*)

[v+(z,w)]

		487						488						489						490	
5	6	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6	1	2
x.x	x	x	x		x	x		x	x			x.x	x	x	x		x	x		x	x
		x	x		x	x				x		x	x			x		x			

Figure 142: PRB 62 (*Themes from Chaka*)

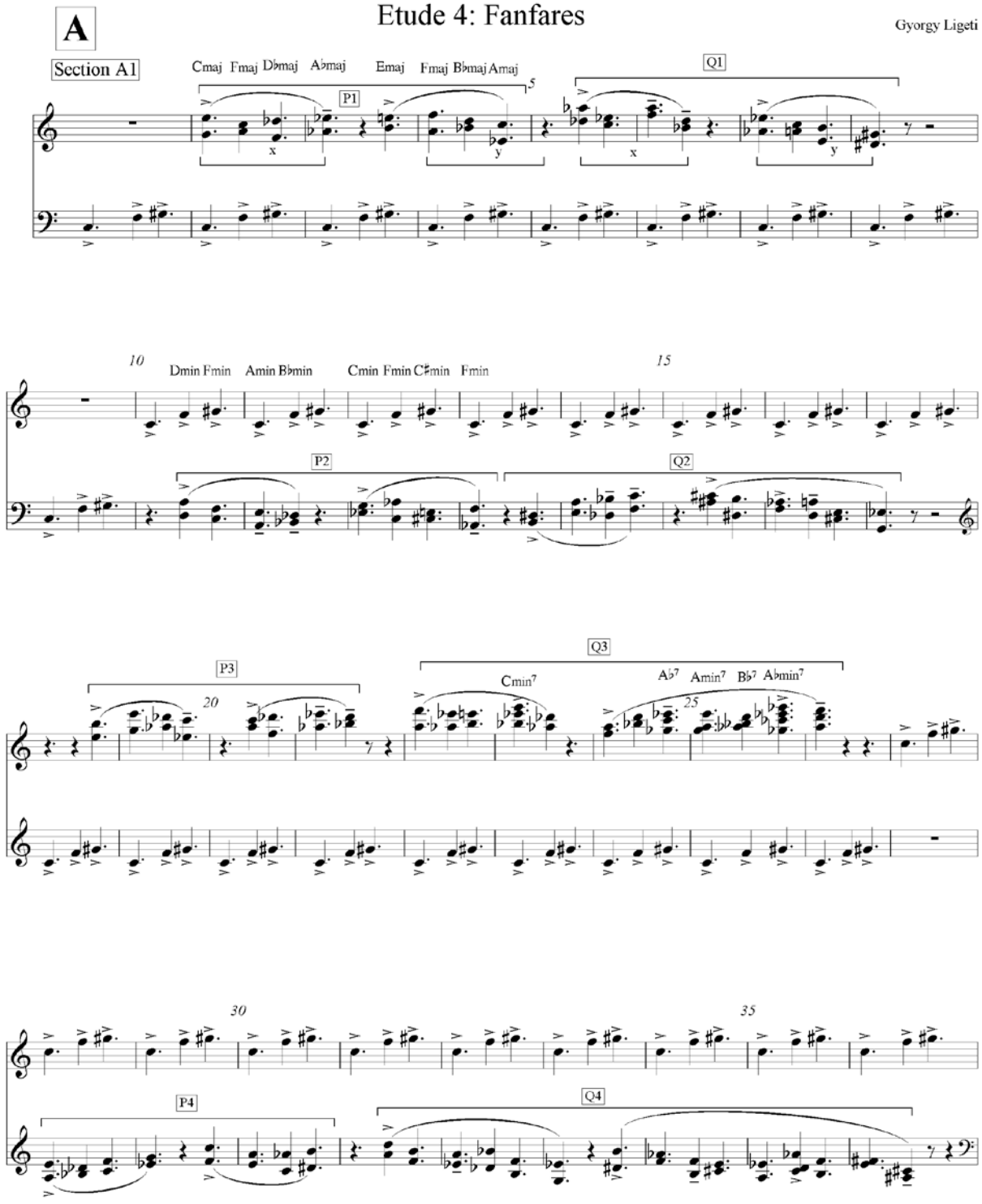
[v+(x,y)]

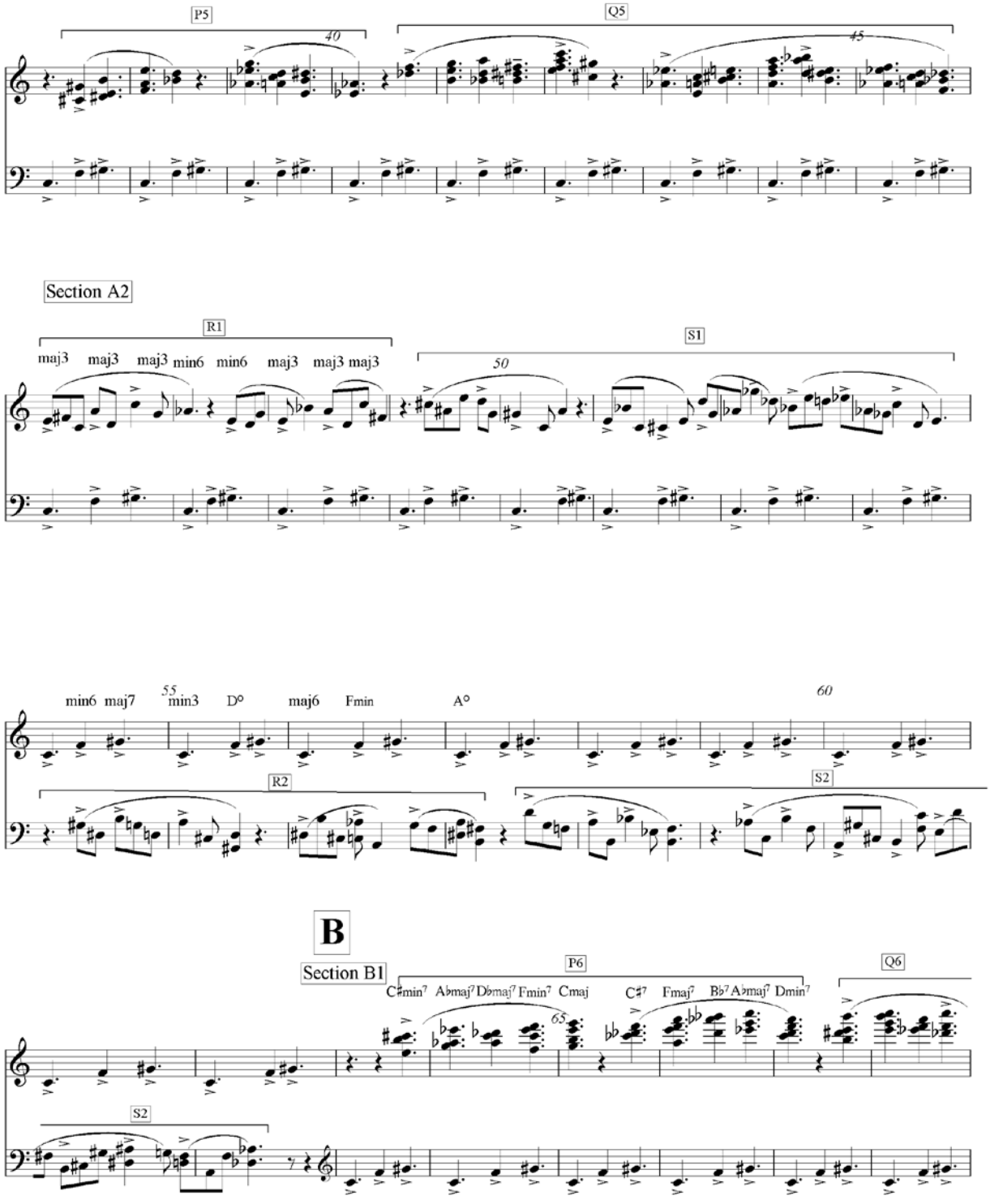
				493						494		
3	4	5	6	1	2	3	4	5	6	1	2	3
		x.x	x	x	x		x	x		x	x	
x	x		x	x		x	x		x	x		

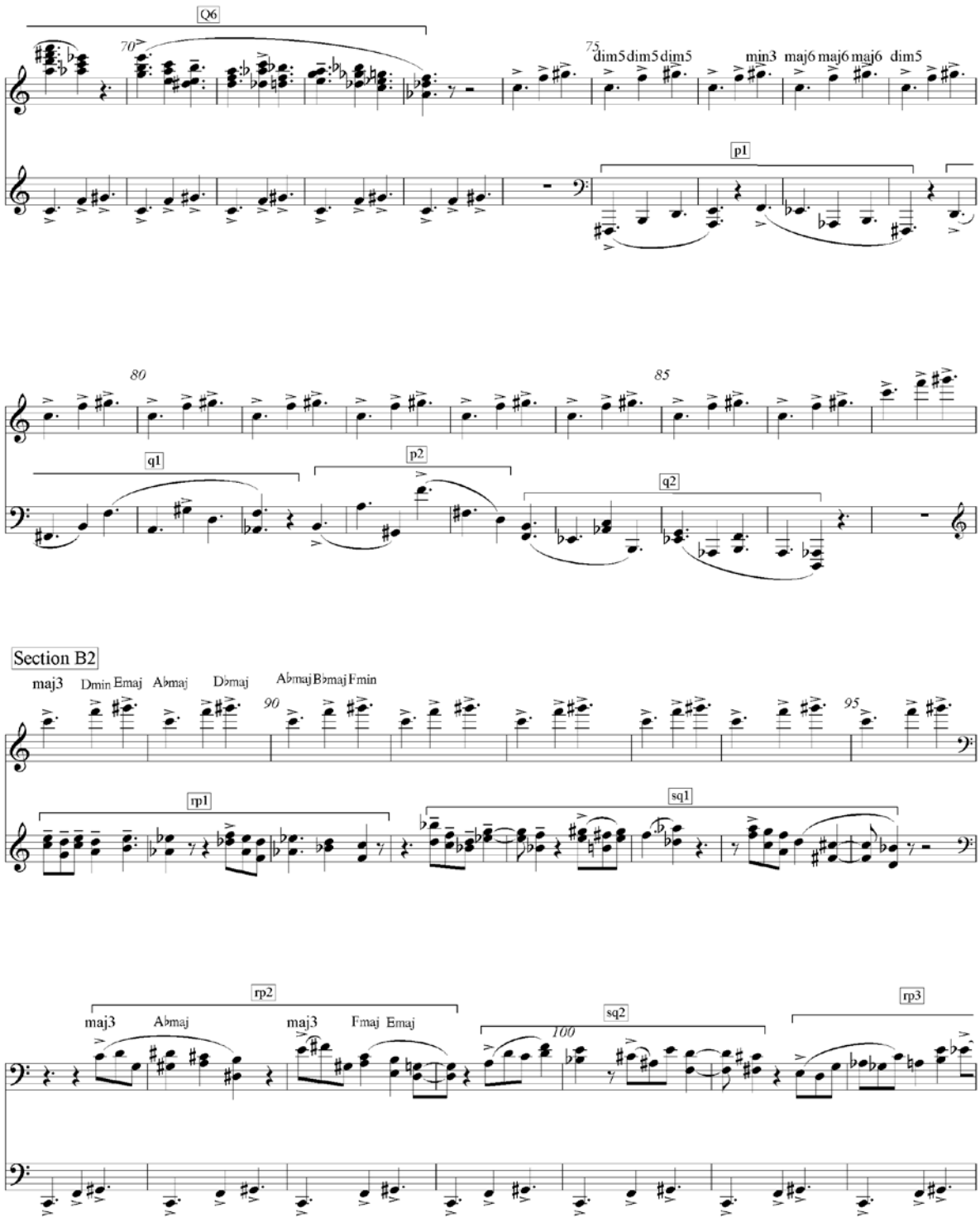
Figure 143: PRB 63 (*Themes from Chaka*)

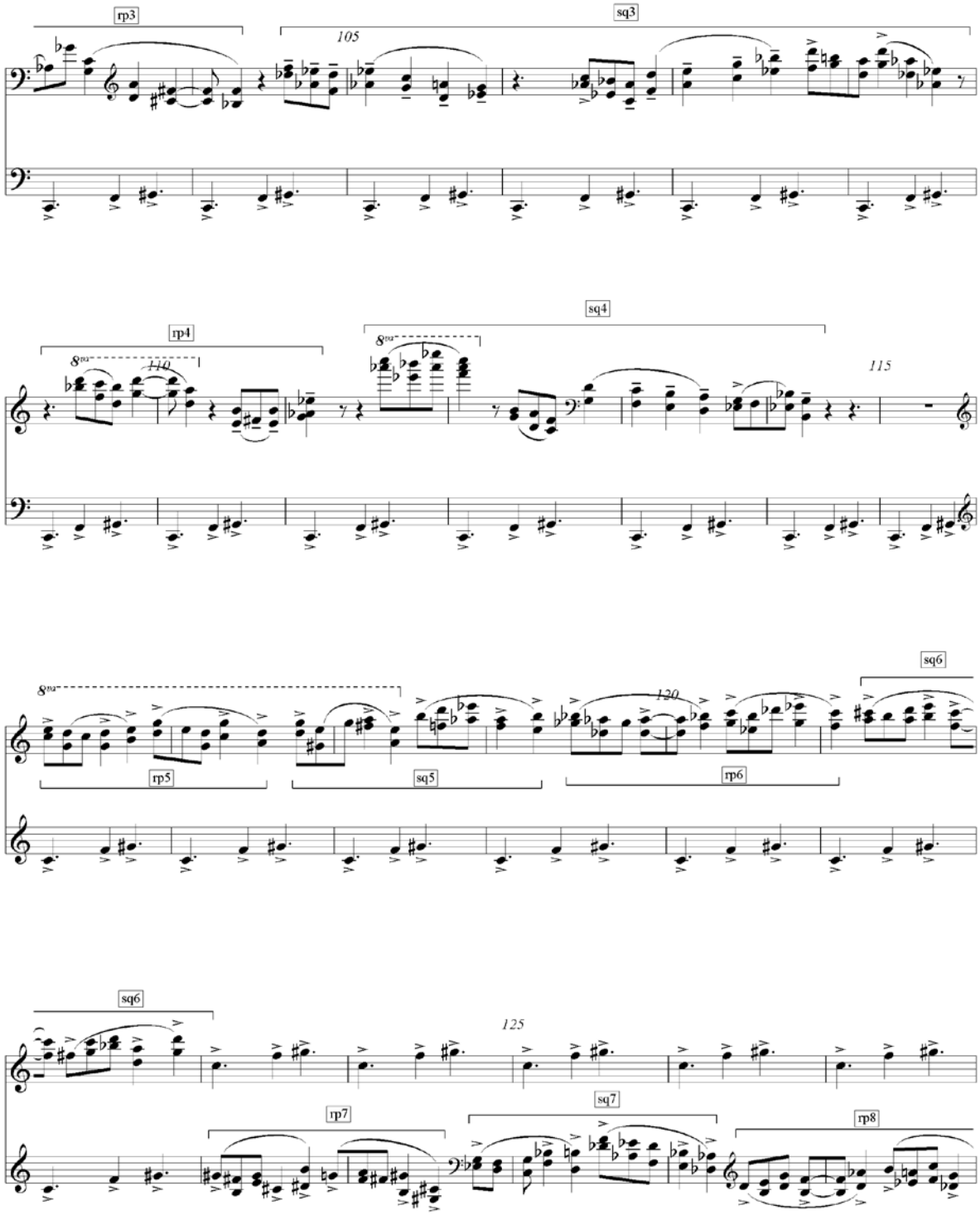
APPENDIX D

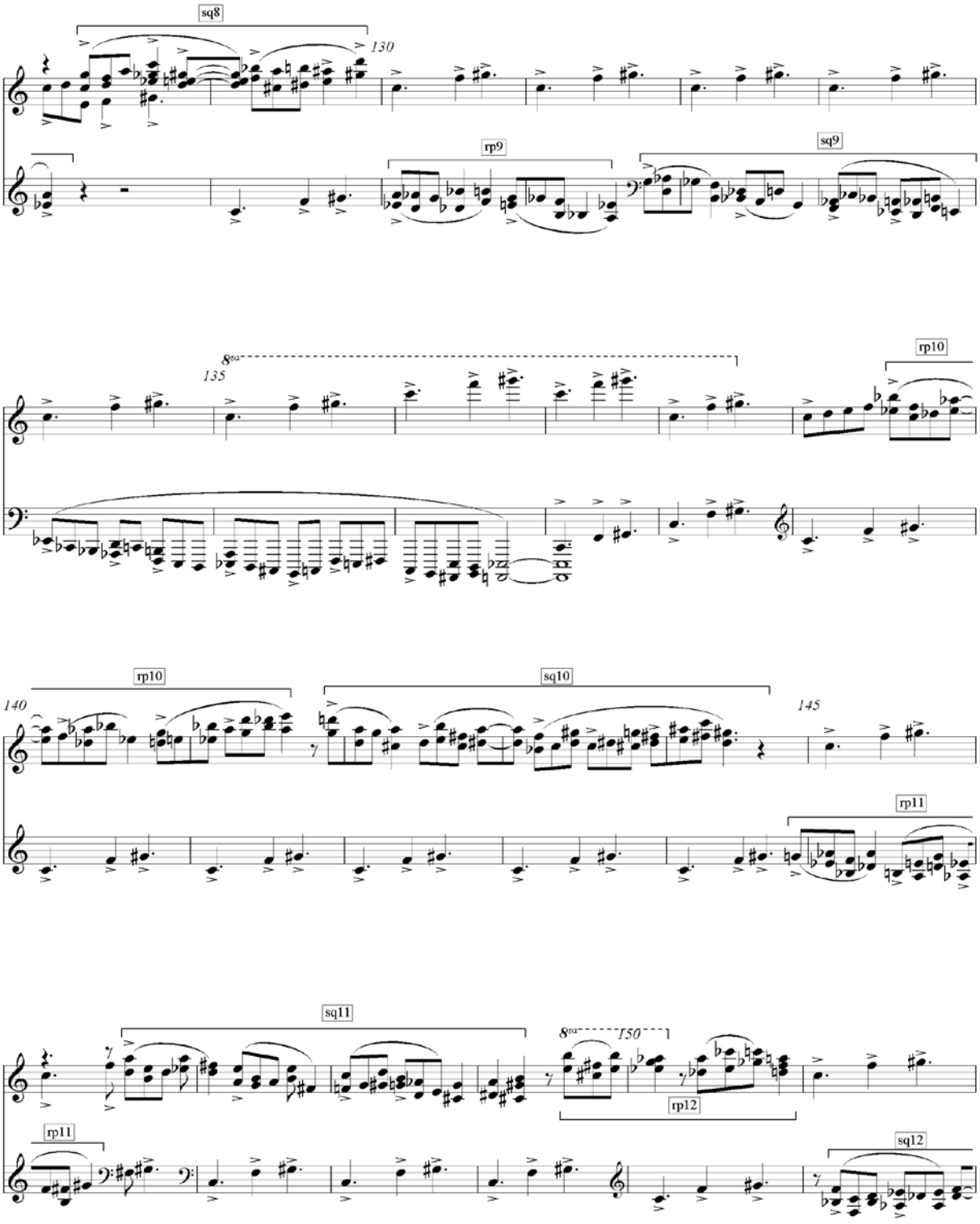
REDUCED SCORE – *FANFARES*

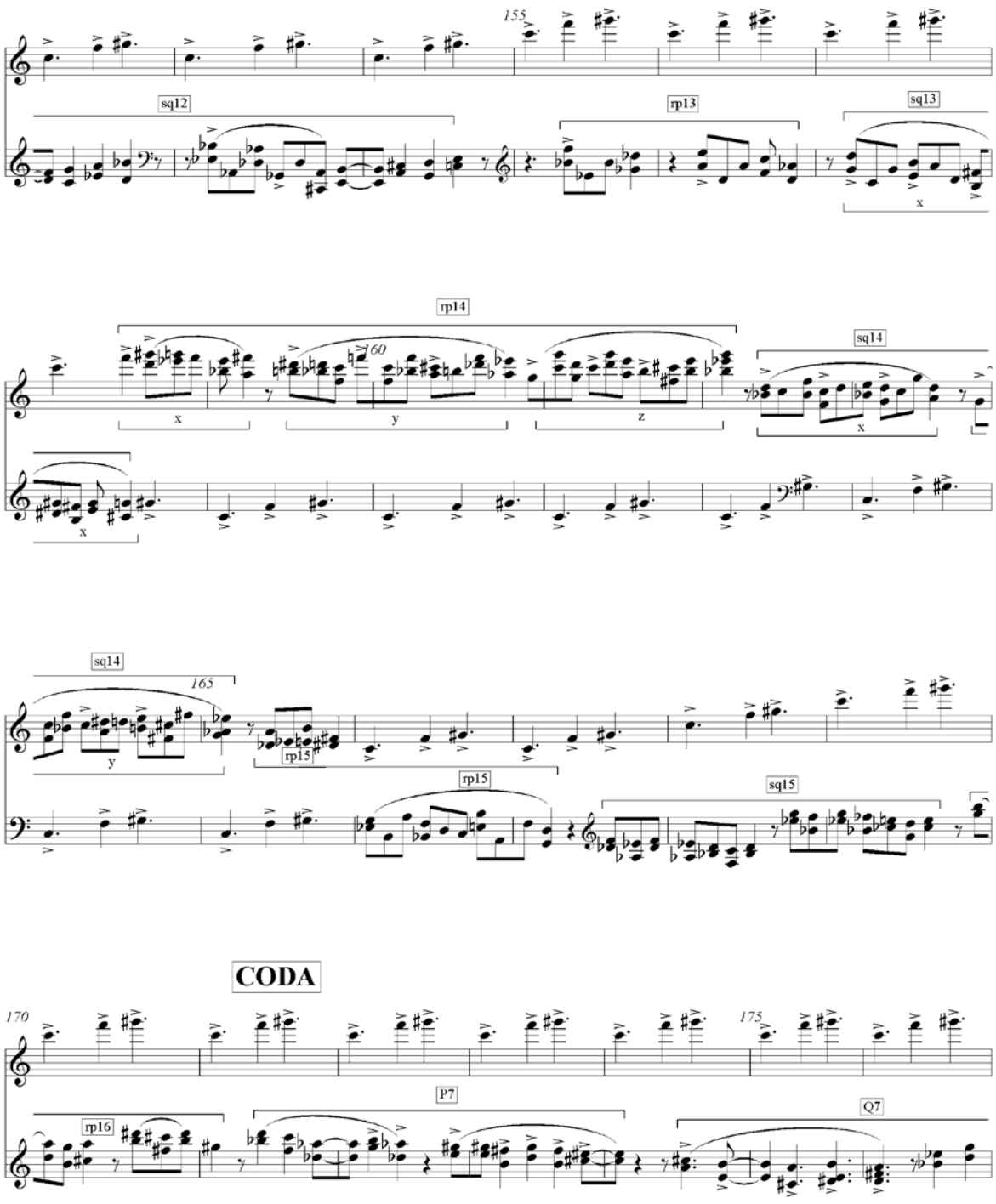

A
Etude 4: Fanfares
Gyorgy Ligeti
Section A1
Cmaj Fmaj Dbmaj Abmaj
Emaj Fmaj Bbmaj Amaj
P1
Q1
Dmin Fmin
Amin Bbmin
Cmin Fmin C#min Fmin
P2
Q2
P3
Q3
Cmin7
Ab7 Amin7 Bb7 Abmin7
P4
Q4

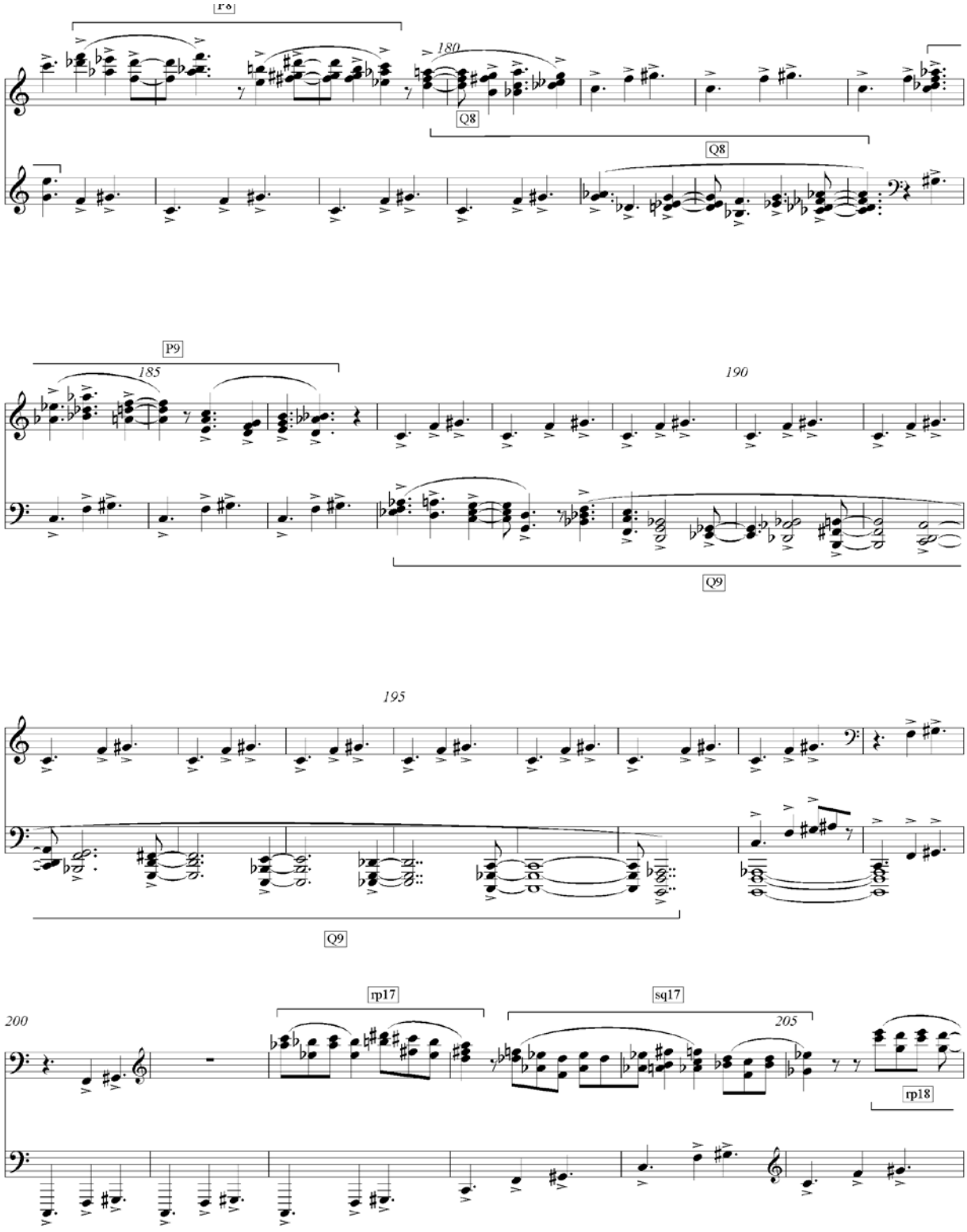

P5
40
Q5
45
Section A2
R1
maj3 maj3 maj3 min6 min6 maj3 maj3 maj3
S1
50
min6 maj7
55
min3 D° maj6 Fmin A°
60
R2
S2
B
Section B1
P6
C♯min7 A♭maj7 D♭maj7 Fmin7 Cmaj C♯7 Fmaj7 B♭7 A♭maj7 Dmin7
65
Q6
S2

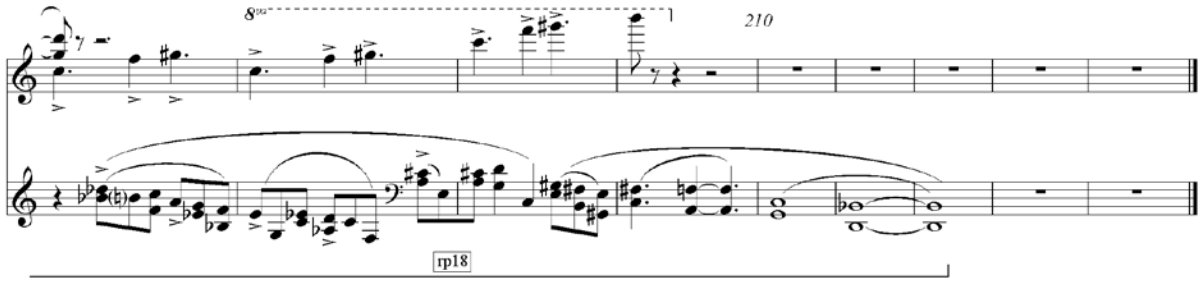

Q6
70
75
dim5 dim5 dim5
min3 maj6 maj6 maj6 dim5
p1
80
85
q1
p2
q2
Section B2
maj3 Dmin Emaj Abmaj Dbmaj
90
Abmaj Bbmaj Fmin
95
rp1
sq1
rp2
maj3 Abmaj
maj3 Fmaj Emaj
100
sq2
rp3


rp3
105
sq3
sq4
rp4
8va
110
115
sq6
120
rp5
sq5
rp6
sq6
125
rp7
sq7
rp8


sq8
130
rp9
sq9
8va
135
rp10
140
rp10
sq10
145
rp11
sq11
8va
150
rp12
rp11
sq12


155
sq12
rp13
sq13
x
rp14
160
x
y
z
sq14
x
x
sq14
165
y
rp15
rp15
sq15
CODA
170
175
rp16
P7
Q7


180
Q8
Q8
P9
185
190
Q9
195
Q9
rp17
sq17
200
205
rp18


8va
210
rp18

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Àjùlọ Kìnìún

Ayọ̀ Olúránti

INSTRUMENTATION

Flute

Ìyáàlù

(Yorùbá Talking Drum)

Percussion
(Agogo, Àkúbà, Sèkèrè, Temple Blocks)

Marimba

Voice

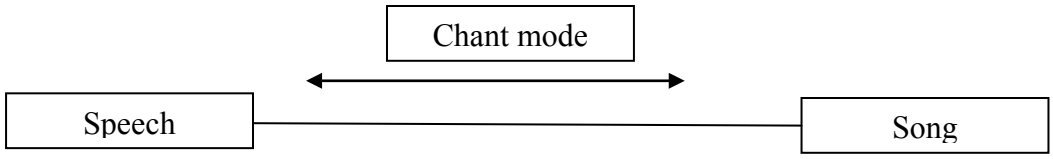
Piano

duration c. 10'

FOREWORD

Àjùlo Kìnìún, for voice, *ìyáàlù* (*Yorùbá* talking drum), percussion and piano employs musical resources found in *Yorùbá dùndún* music and the traditional vocal genres:

- *Dùndún* music, created and preserved by oral technique, is a text based traditional instrumental genre that explores the musicality of the *Yorùbá* language. Essentially, in *dùndún* music the master (lead) drummer, playing the *ìyáàlù* applies the speech and rhythm functions of the drum in reciting specific drum poetries while other secondary *dùndún* instruments rhythmically accompany the *ìyáàlù*. The master drummer, as the fulcrum for *dùndún* music performance, improvises with poetry texts: these texts with their inherent tonality and natural speech rhythm function as musical motifs or themes that are developed through improvisation within the cause of *dùndún* music performance.
- The performers of traditional *Yorùbá* vocal genres such as *ìjálá*, *ewì*, *ofò*, *rárà* etc., chant texts using heightened speech in free rhythm. With the use of this vocal technique, texts are chanted via a continuum operating between the boundaries of speech and song.



In terms of pitch attribute, the chant mode varies between the relatively undefined three pitch level tones engaged in speech and song pitches based on the chromatic-equal temperament system. Within the continuum in the diagram above, the chant mode can be closer to the speech mode than to the song mode and vice-versa. At times, it is just midway. This variability is not only true for pitch but for rhythm as well. At times, the chant mode is articulated as speech rhythm and at times as quasi-metered rhythms as in European songs.

Àjùlo Kìnìún is a text-based work that explores the musicality of the *Yorùbá* language as it occurs and affects both vocal and instrumental *Yorùbá* musical genres, using the elements of *dùndún* music and the heightened speech vocal technique described above. Apart from the main ostinato (marimba), rhythmic patterns functioning similarly to time-line patterns and some improvisatory materials, the instruments are mostly made to behave like the *ìyáàlù*, "saying" some individual texts or phrase. Also, the source texts/phrase are motivically treated in some of the instrumental lines in a way similar to the improvisations of the lead drummer, i.e., exploring the *dùndún* master drummer's creative process.

Àjùlo Kìnìún also incorporates the principles of African Pianism by making the piano behave like the talking drum. The piano is essentially stripped of its harmonic function, and with a minimalistic approach to the use of pitches, an attempt is made to approximate the system of three tone levels of the spoken *Yorùbá* language that forms the basis of the *ìyáàlù*'s speech capability.

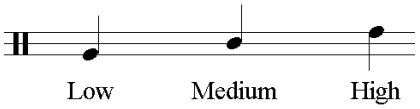
The textual materials are based on five *Yorùbá* proverbial expressions. The first, "Àwa l'àgbà…" is actually a pedagogical piece from the *ìyáàlù* repertoire, which makes use of the low and mid tone speech levels. It is a rudimentary piece, which I learnt whilst studying the *ìyáàlù* with the master drummer, Suleiman Adégbenró. The other proverbial expressions were so selected because they bear a thematic relationship with the first and offer a broader variety/combination of speech level tones. The texts and their translations are as follows:

Àwa l'àgbà,	We are the venerable;
Adìye funfun l'àgbà adìye,	The white-feathered cockerel is sage among its peers;
Àwa l'àgbà	We are the venerable.
Aju'ra wa lo,	We are not all of equal ranking,
Tì'jàkadìkó	The measure of a [wo]man's mettle does not subsist in the physical.
Nínú eranko, Kìnìún l'oba,	Among beasts, the lion is king.
Ewúré 'f'esè p'alè	In vain the goat stomps and schemes;
Kò leè d'ádé láílái	It can never win the crown.
Eni tí kò t'énií nà,	The snares of a weaker adversary
B'ó lo d'ènà d'eni, àje kún ìyà ni yó je,	Will bring him a surplus of bitter disgrace.
K'élégbé mo egbé ara rè	Let those who pick battles ensure that they're equally matched.
Kìnìún l'oba eranko nínú igbó,	The lion is king among beasts;
Tó bá bú ramú ramù,	With a mighty roar it stills the forests
Gbogbo igbó á pa róróninini	In quivering silence.

PERFORMANCE NOTES

1. The ***agogo*** is a single or multiple-flanged iron bell.

i. The *agogo* part is scored for three bells with three distinctive pitches. The bells are required to replicate the three speech tone levels of the *Yorùbá* language:



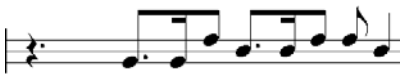
Thus, in addition to the rhythmic function of the *agogo*, it takes up speech and melodic functions in *Àjùlo Kìnìún*.

ii. It is important to balance the piercing sound of the *agogo* with the rest of the ensemble.

iii. The pitches of the *agogo* are not to be coordinated with those of *ìyáàlù*.

2. The ***ìyáàlù***, an hourglass-shaped tension talking drum, is the instrument played by the master drummer in the *Yorùbá dùndún* ensemble:

i. The *ìyáàlù* line is scored using the three tone levels of the *Yorùbá* language. However, in practice the *ìyáàlù* makes use of more than three tones based on the requirements of the relayed texts. Thus, a good understanding of the *Yorùbá* language is required to play the *ìyáàlù* within the context of the *dùndún* tradition. The textual materials played on the ìyáàlù in *Àjùlo Kìnìún* are written in the score:



ii. As with *dùndún* performance practice, the *ìyáàlù* player sets the three speech pitches with each performance of *Àjùlo Kìnìún*. However, it is required for the speech and improvisatory pitches to be situated above the register of the *àkúbà* drums. For instance, the *ìyáàlù* can function within the tenor/alto range while the *àkúbà* drums take the bass/baritone register.

iii. The following types of strokes are employed in *Àjùlo Kìnìún*:

M — Muted Stroke: The muted drum stroke is achieved with a stiff wrist (in the hand holding the stick). This action stops the stick from bouncing off the head of the drum.

G^ — Short Glissando (upward): The drum stroke is achieved with a loose wrist (in the hand holding the stick). In the other hand, the wrist holds down the tensioning strings while the fingers also pull the same for pitch control ***after*** (microseconds) the stroke. The dual action of the wrist and the fingers controls the sound decay to create the short and upward microtonal glissando.

G — Short Glissando (upward & downward): The drum stroke is achieved with a loose wrist (in the hand holding the stick). Shortly ***after*** the stroke (microseconds), tension is applied to the head of the drum for the upward glissando with the dual action of the wrist and the fingers on the tensioning strings. The downward glissando follows immediately ***after*** the upward glissando (microseconds) with the tensioning strings freed from the fingers and wrist, thus dropping the tension on the head of the drum.

E — Effect: Push the *ìyáàlù* against the hip with each drum stroke.

iv. The tremolos in *Àjùlo Kìnìún* are not required to have repeated strokes with an even attack duration.

For detailed information on *ìyáàlù* performance techniques, please consult Akin Euba's research work, *Yorùbá Drumming: The Dùndún Tradition.* Germany: Bayreuth African Studies, 1990.

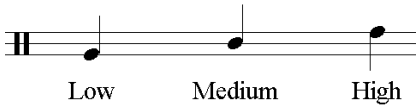
3. The ***àkúbà*** is a single-headed hand-beaten conga-like drum also known as ***àgbámọ́lẹ̀***:



Àkúbà / Àgbámọ́lẹ̀ *Ògìdó* *Kpàlóngò* (peg drum)

Other hand-beaten drums include the *ògìdó* and the *kpàlóngò*. These drums are generally bigger than the conga and have a broader array of sounds. They are deeper than the conga in pitch.

i. The *àkúbà* part of *Àjùlo Kìnìún* is scored for three hand-beaten drums. Any of the listed drum-type above or conga-like drums can be used subject to condition that the selected drums have the low-mid-high pitch relationship:



ii. The drums are to be tuned as bass/baritone drums within a register range that stays clear of the *ìyáàlù* (alto/tenor) register. The pitches are not to be coordinated with those of the *ìyáàlù*.

iii. The *àkúbà* drums are used as both rhythm and speech instruments in *Àjùlo Kìnìún*. Texts are therefore written in the score.

iv. The following muting techniques are applied:

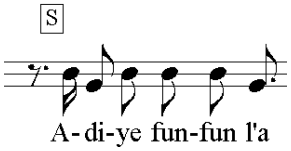
M	Muted Stroke I: The muted drum stroke is achieved with the fingers resting on the head of the drum after the stroke.
M^	Muted Stroke II: The muted drum stroke is achieved with the open palm resting on the head of the drum after the stoke.

4. The ***sèkèrè*** is a polished gourd around which a net of beads or cowrie shells are wound:

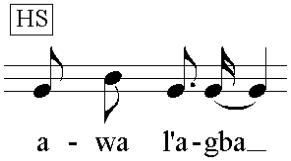

Both types can be used and the size does not matter. They are to be hand-beaten and it is important for the piercing sound of the *sèkèrè* to be balanced with the rest of the ensemble.

5. There are four vocalization types in *Àjùlo Kìnìún*:

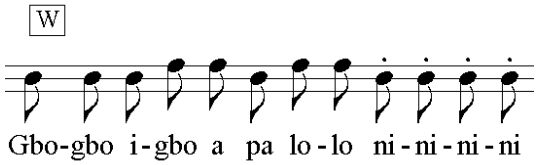
i. Speech: normal talking voice



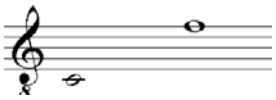
ii. Heightened Speech: chanting with free rhythm



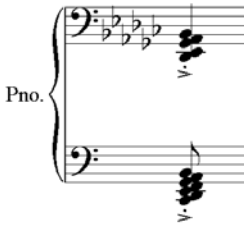
iii. Whisper:



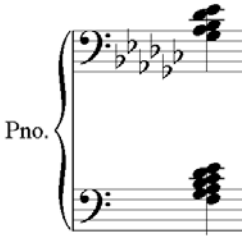
iv. Song: Normal singing technique with the male voice range:



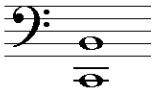
6. The **piano** replicates drumming techniques at some points in *Àjùlo Kìnìún*:
   i. Tremolos are to be realized by the alternation of the LH finger 2 and RH finger 2
   ii. The cluster chords at mm.27, 61-70, 169 – 171 are detailed as follows:



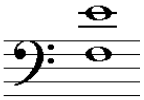
LH Cluster Chord



RH Cluster Chord



LH Cluster Chord Range

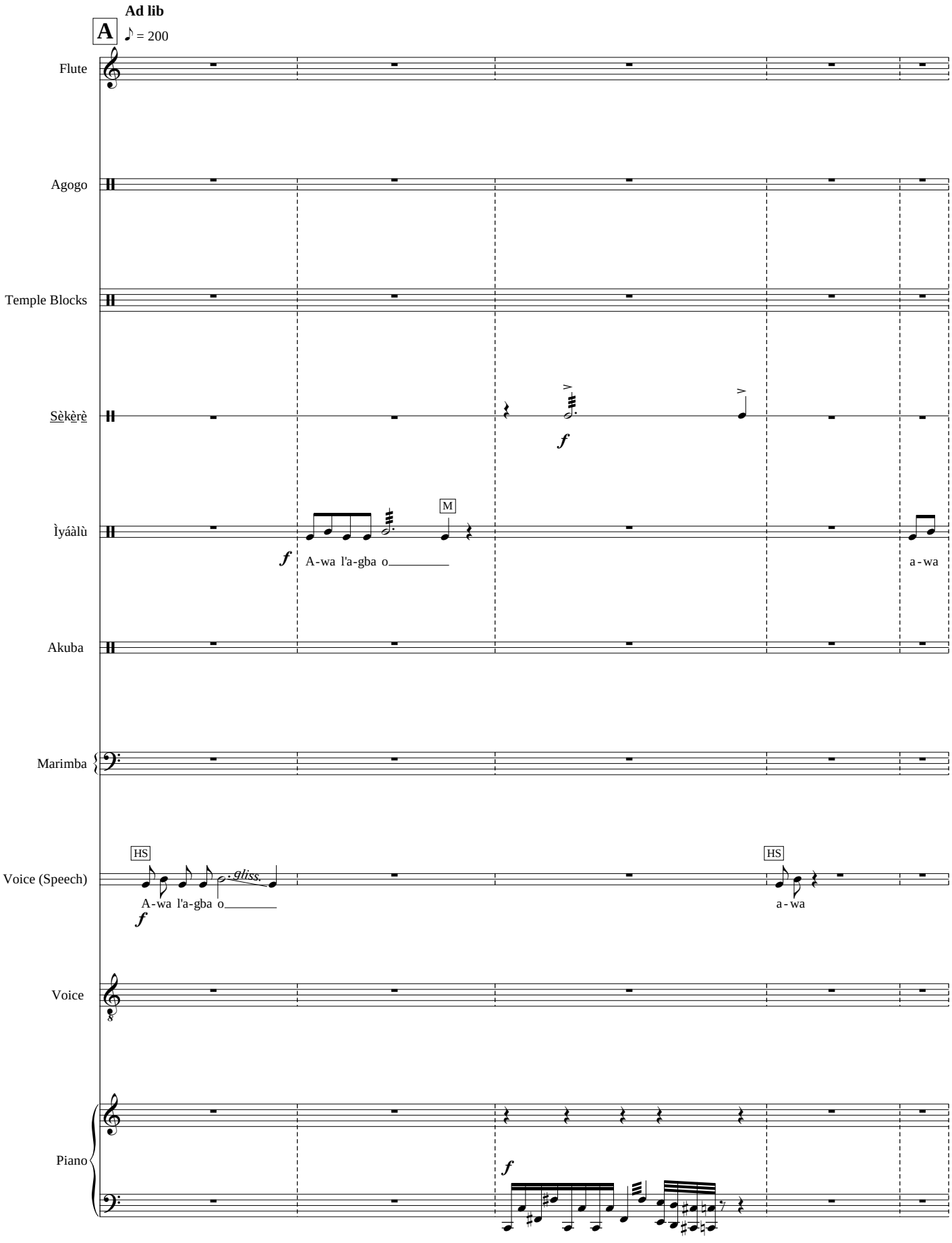


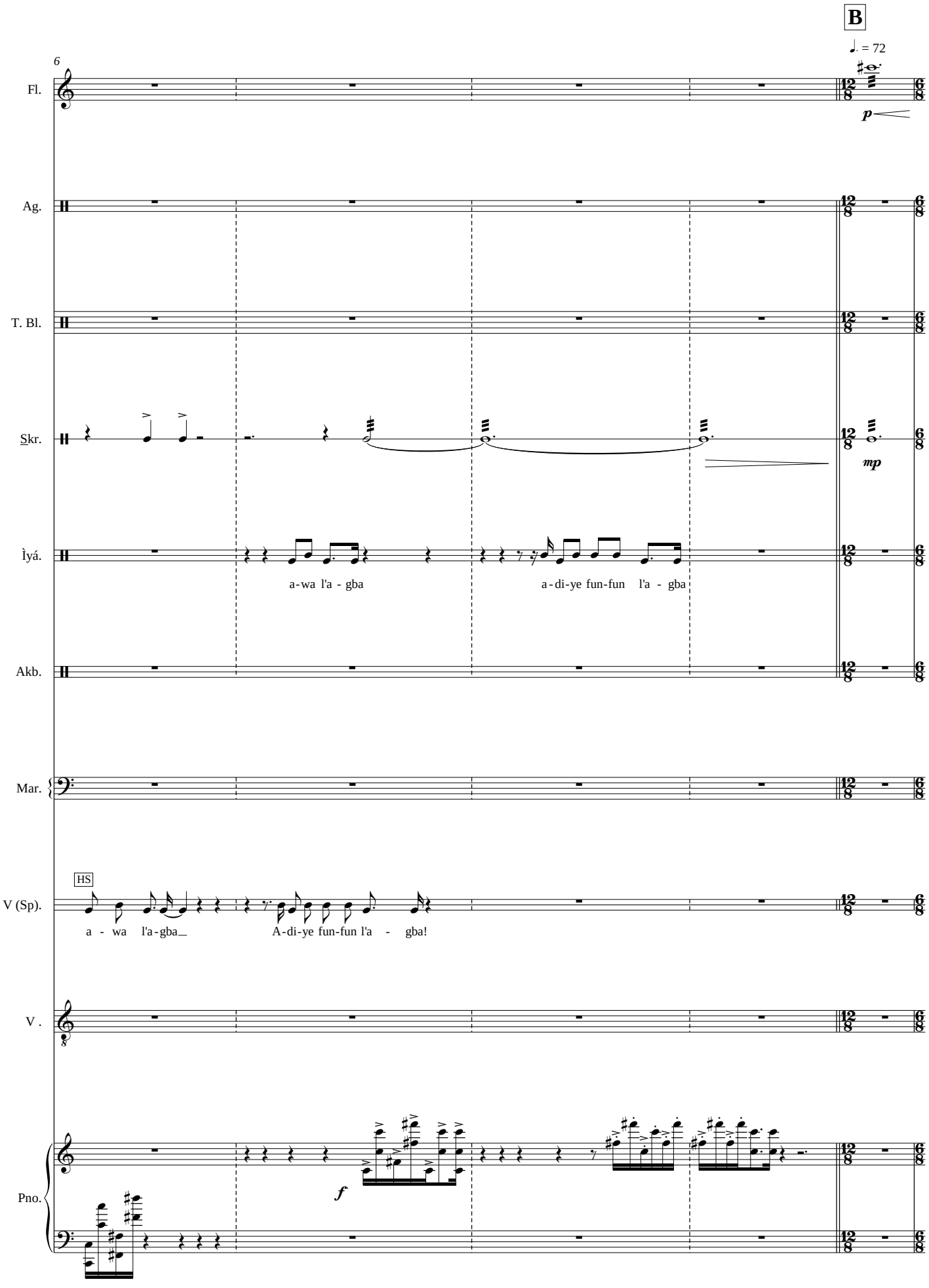
RH Cluster Chord Range

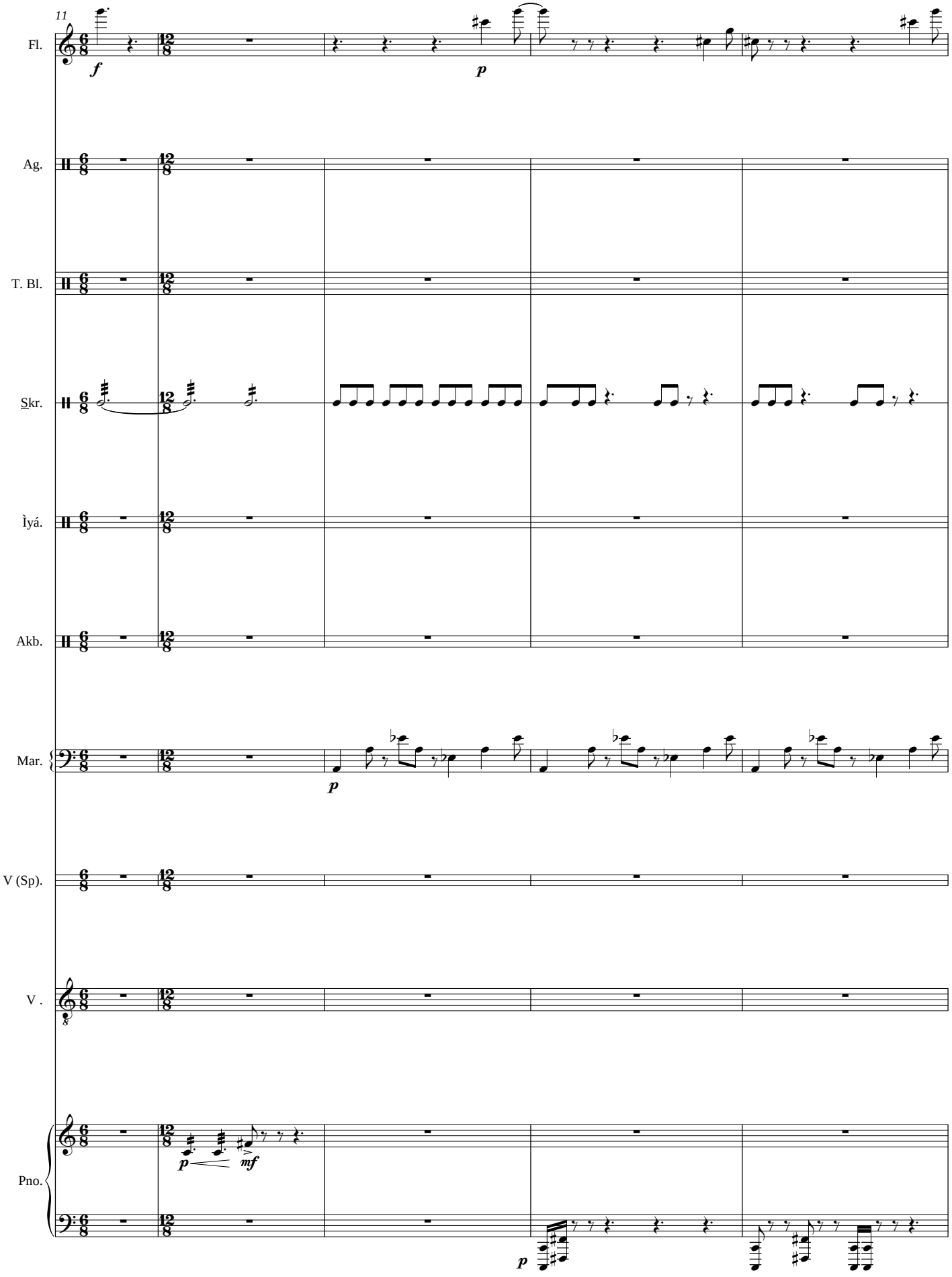
7. The **marimba** staccato notes imply dead stroking.

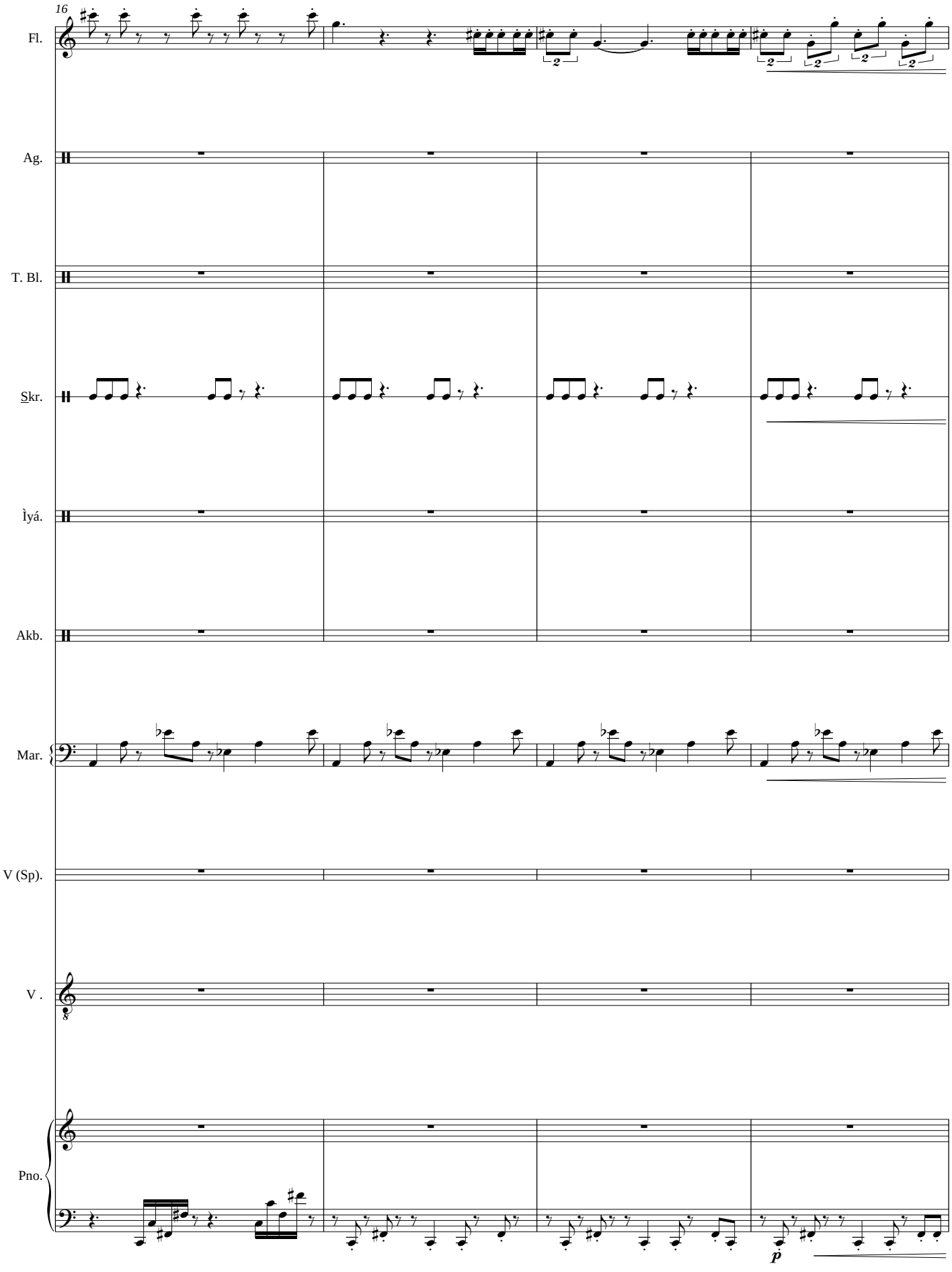
8. No accentual matrices as all pulses have the same status. Therefore there are neither strong nor weak beats.

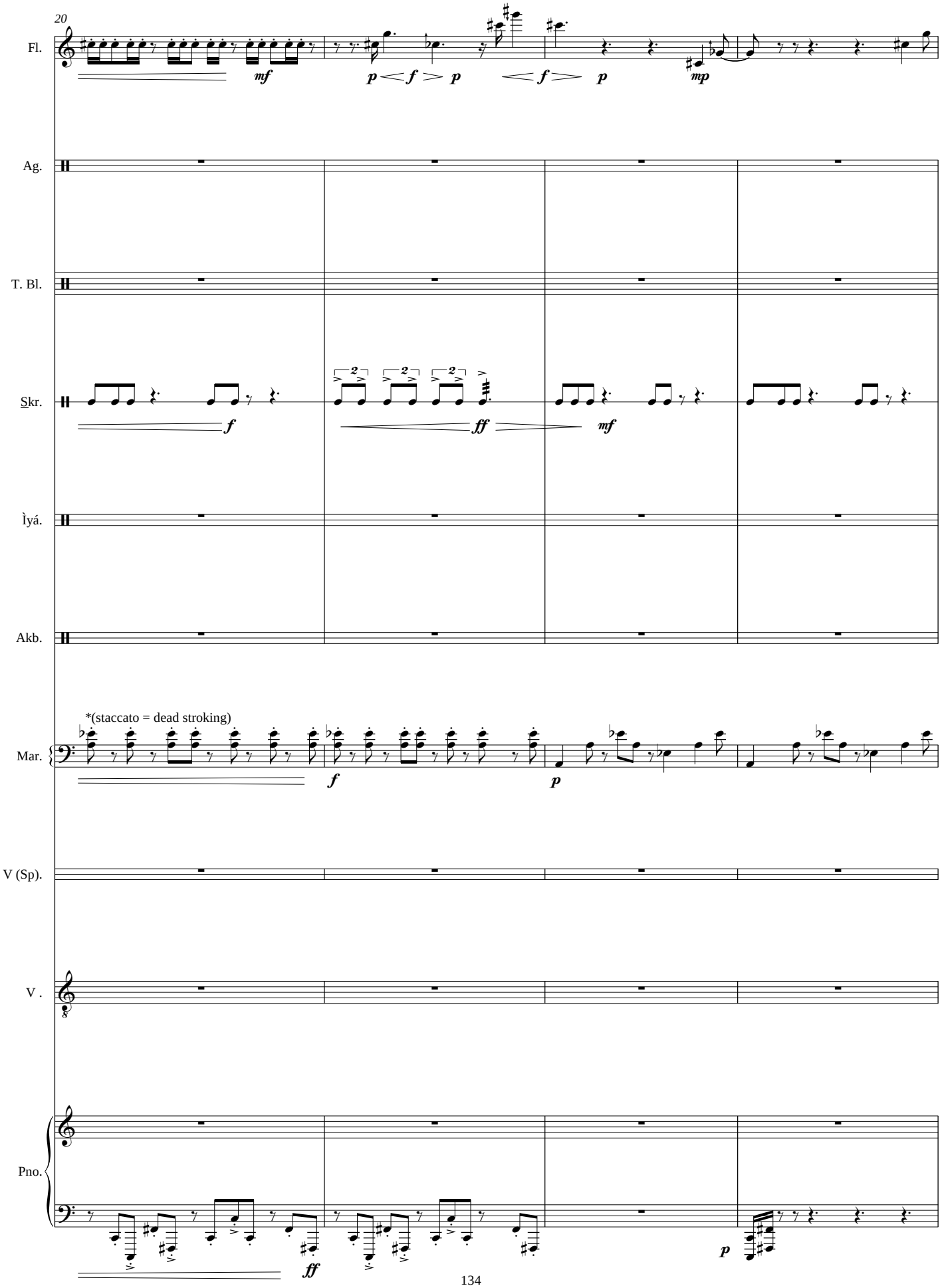
ÀJÙLO KÌNÌÚN

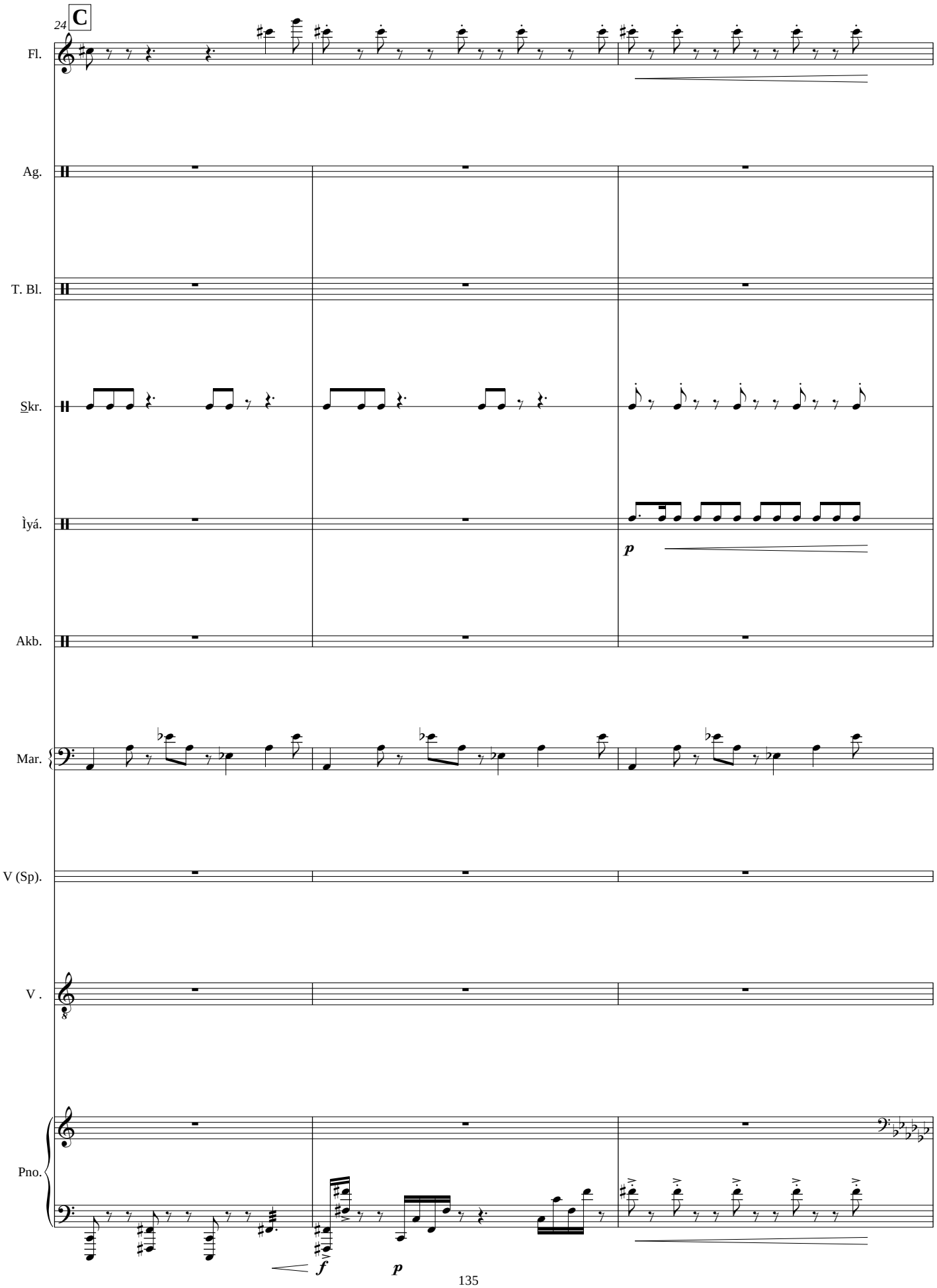


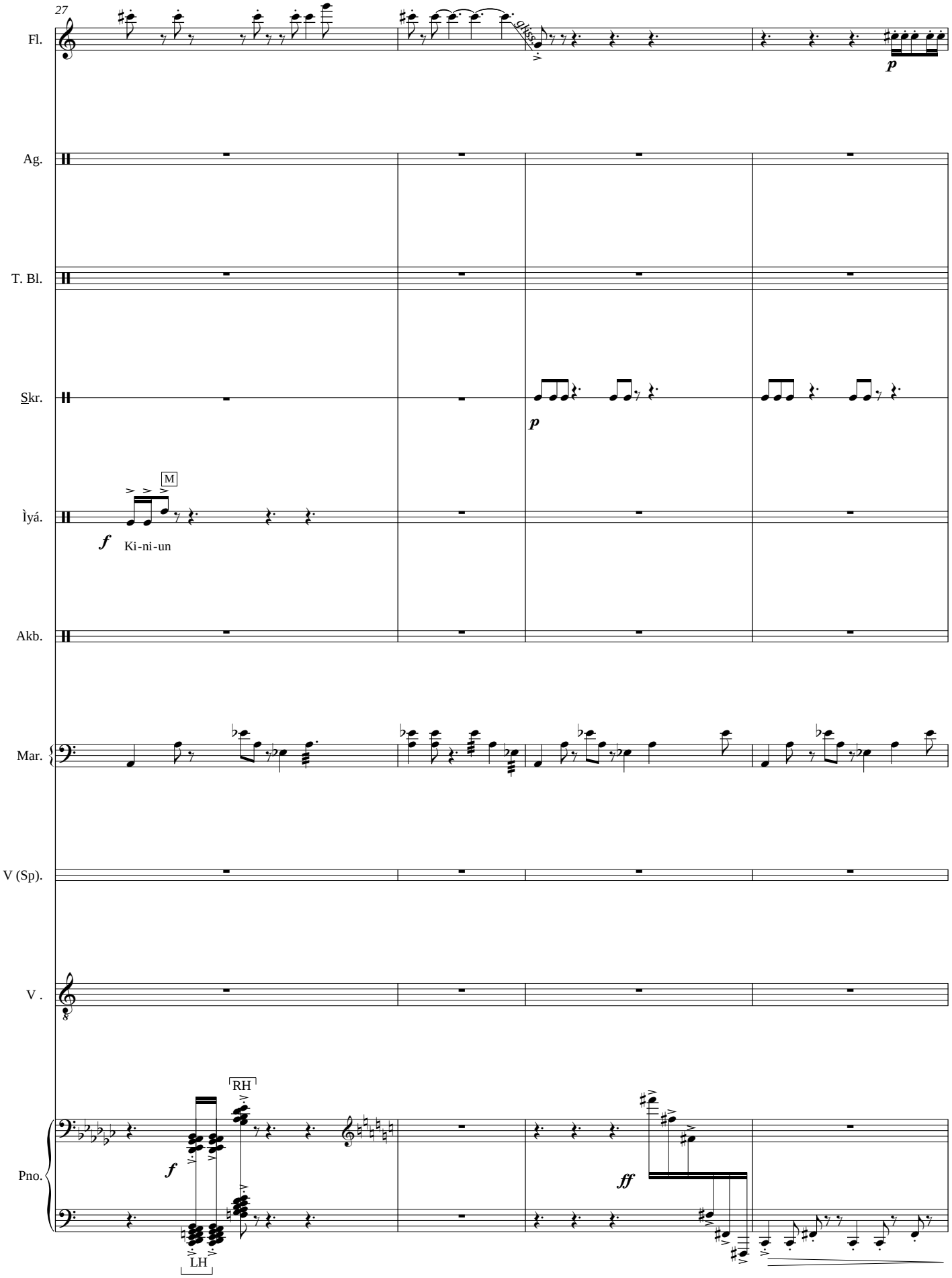

B
♩. = 72
6
Fl.
p
Ag.
T. Bl.
Skr.
mp
Ìyá.
a-wa l'a - gba
a-di-ye fun-fun l'a - gba
Akb.
Mar.
HS
V (Sp).
a - wa l'a-gba_
A-di-ye fun-fun l'a - gba!
V .
Pno.
f

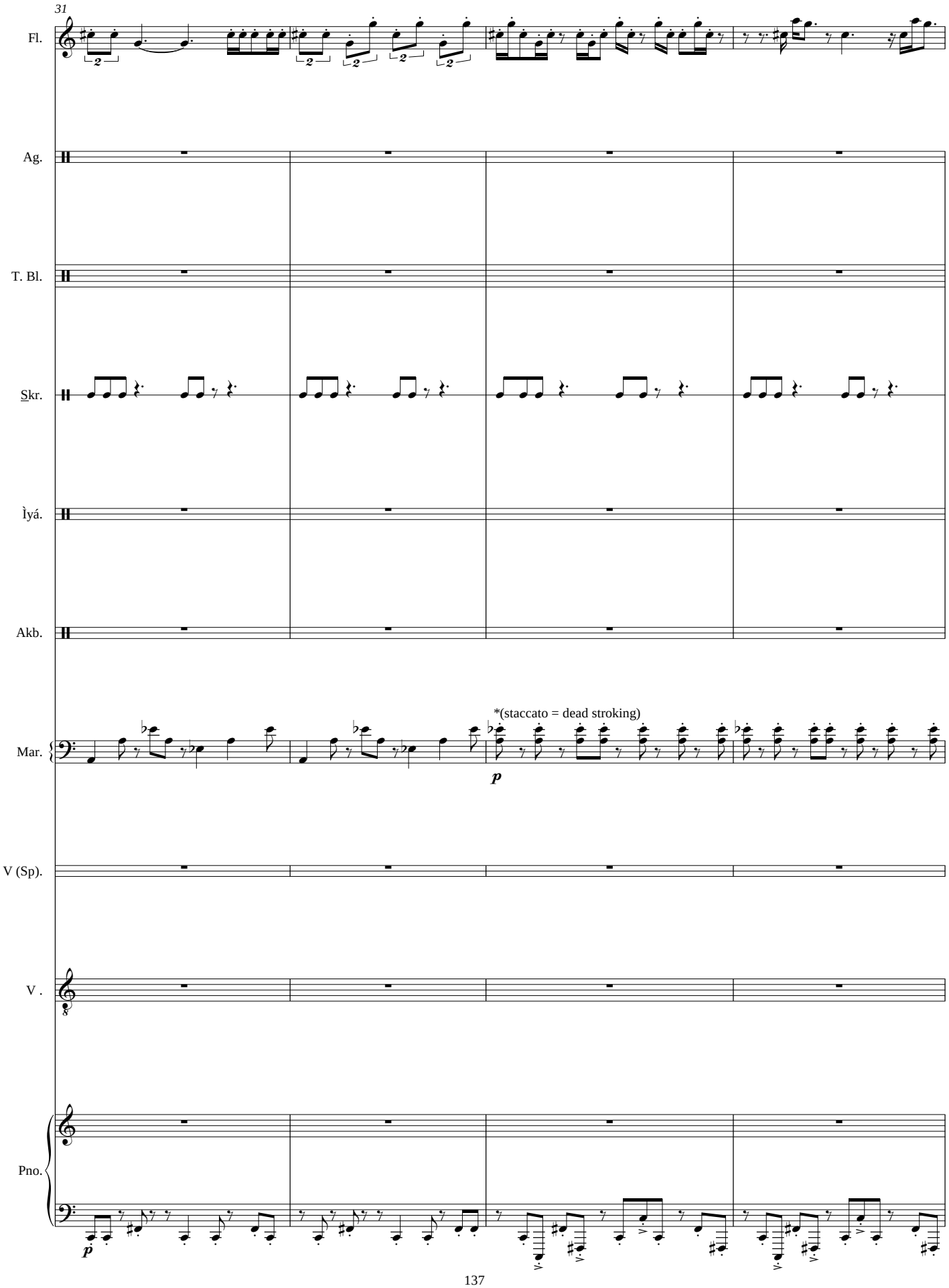

11
Fl.
Ag.
T. Bl.
Skr.
Ìyá.
Akb.
Mar.
V (Sp).
V .
Pno.

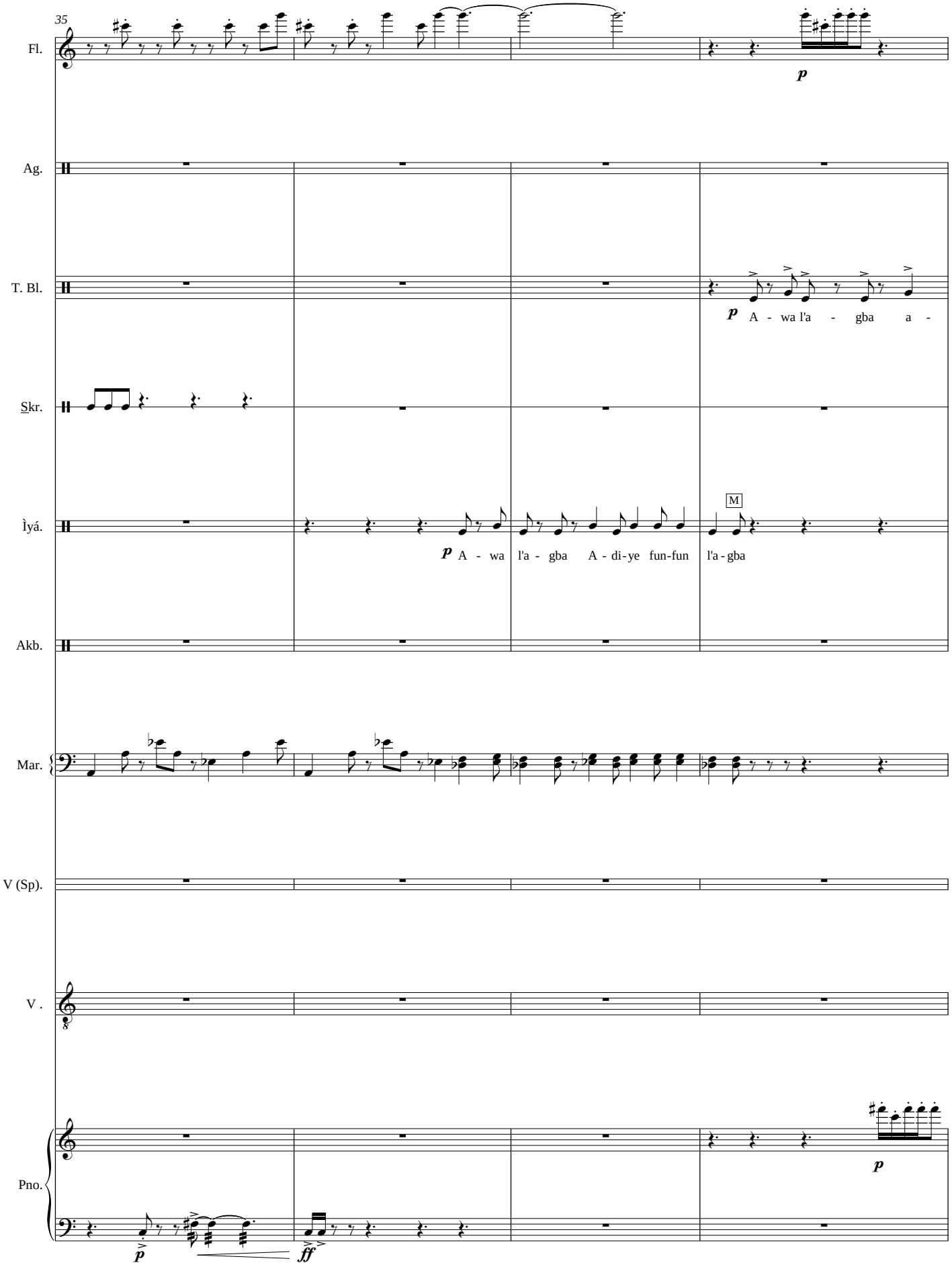

16
Fl.
Ag.
T. Bl.
Skr.
Ìyá.
Akb.
Mar.
V (Sp).
V .
Pno.
p

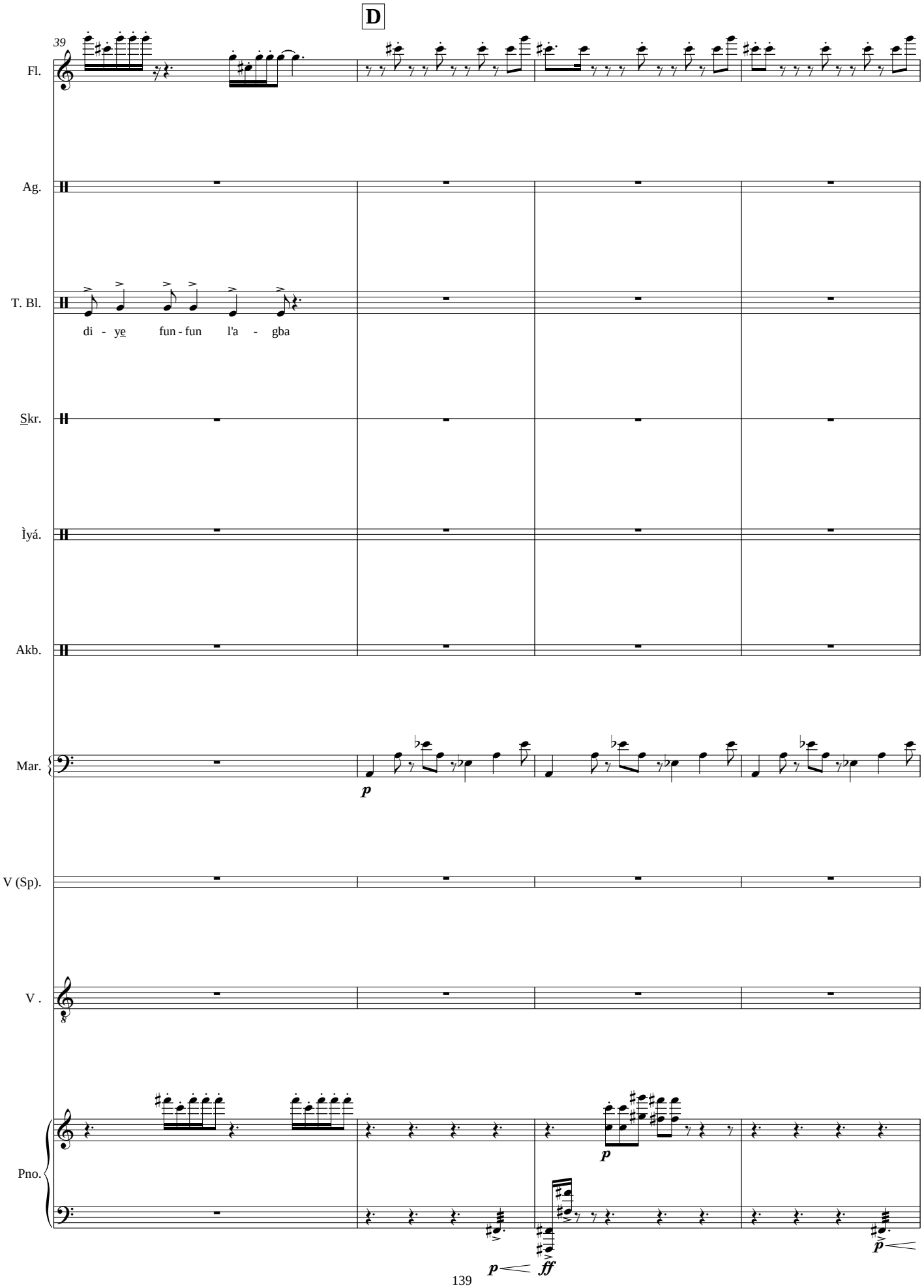

20
Fl.
Ag.
T. Bl.
Skr.
Ìyá.
Akb.
Mar.
V (Sp).
V .
Pno.
*(staccato = dead stroking)

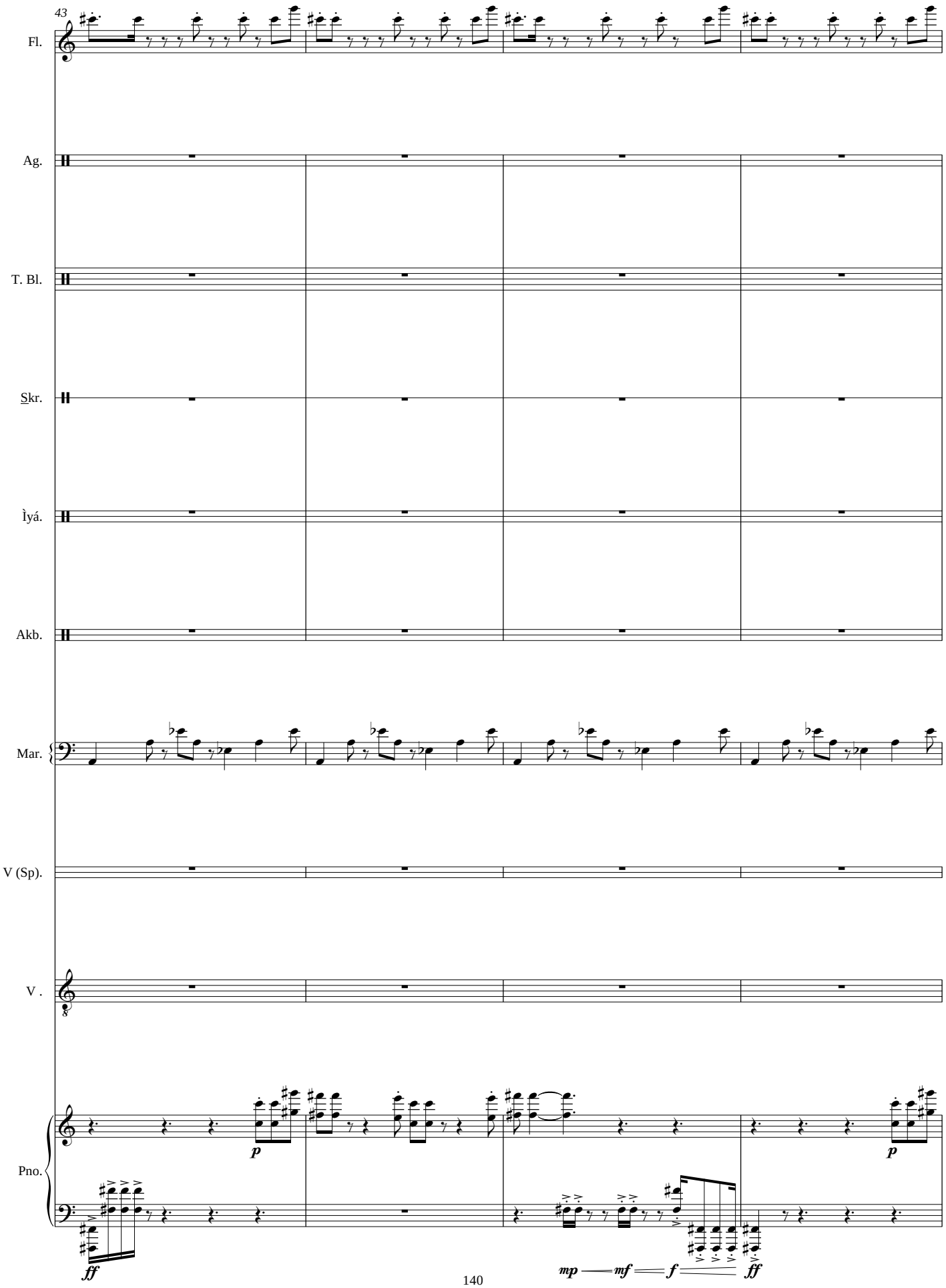

24
C
Fl.
Ag.
T. Bl.
Skr.
Ìyá.
Akb.
Mar.
V (Sp).
V .
Pno.
p
f
p

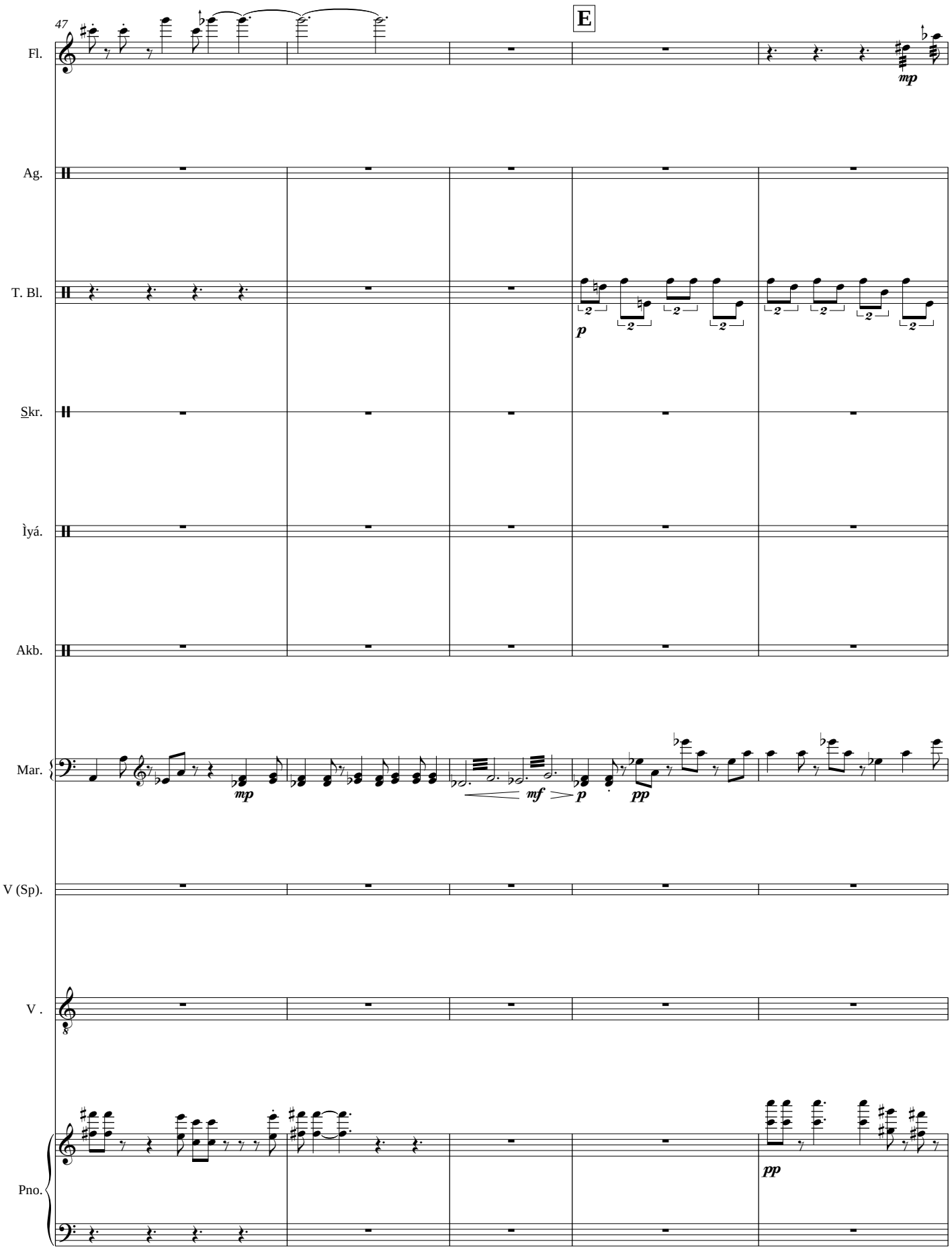

27
Fl.
gliss.
p
Ag.
T. Bl.
Skr.
p
Ìyá.
M
f
Ki-ni-un
Akb.
Mar.
V (Sp).
V .
RH
Pno.
f
LH
ff

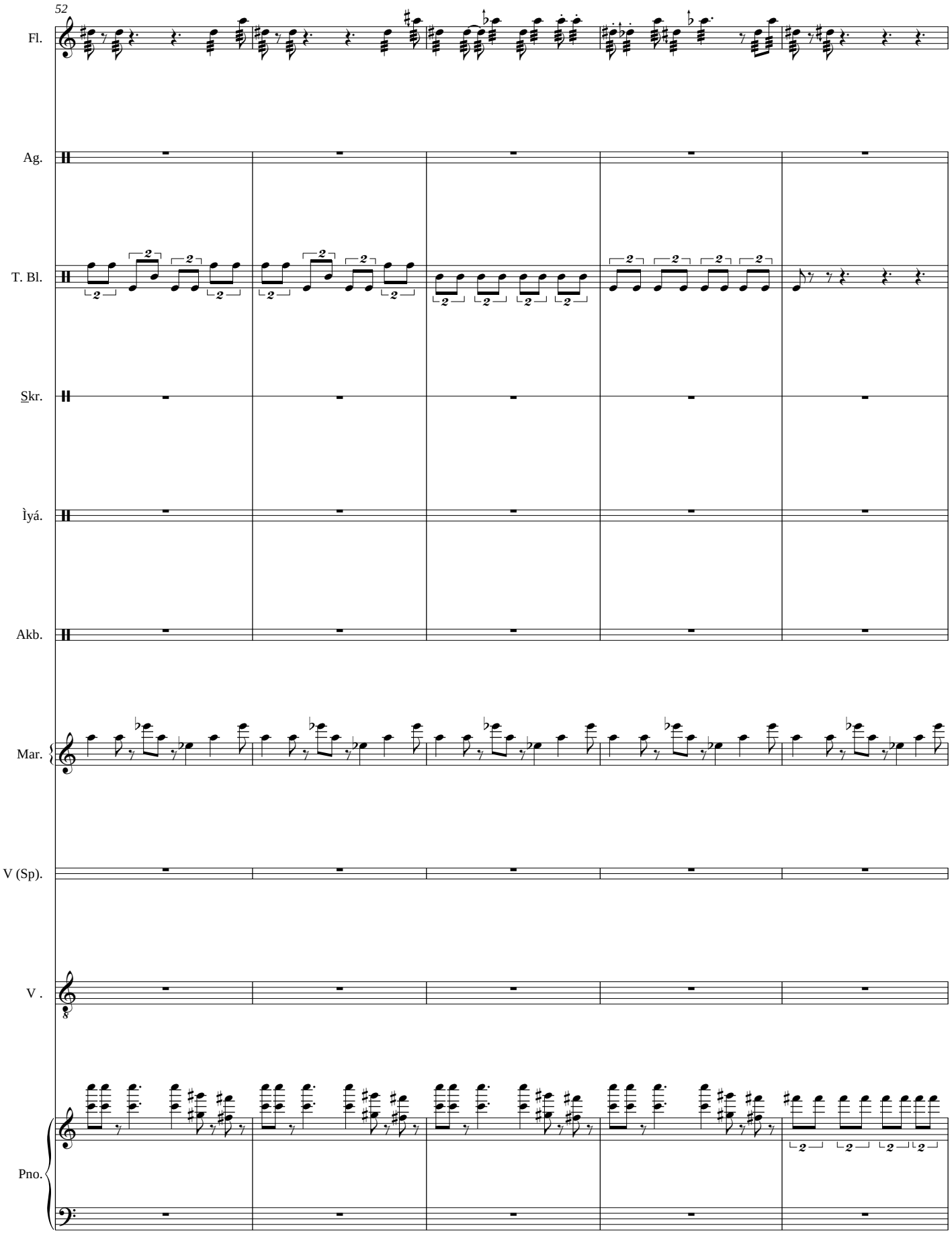

31
Fl.
Ag.
T. Bl.
Skr.
Ìyá.
Akb.
Mar.
*(staccato = dead stroking)
p
V (Sp).
V .
Pno.
p


35
Fl.
Ag.
T. Bl.
Skr.
Ìyá.
Akb.
Mar.
V (Sp).
V .
Pno.
p
A - wa l'a - gba a -
M
A - wa l'a - gba A - di - ye fun-fun l'a - gba
ff


D
39
Fl.
Ag.
T. Bl.
di - ye fun - fun l'a - gba
Skr.
Ìyá.
Akb.
Mar.
p
V (Sp).
V .
Pno.
p
p
ff
p


43
Fl.
Ag.
T. Bl.
Skr.
Ìyá.
Akb.
Mar.
V (Sp).
V .
Pno.
p
p
ff
mp
mf
f
ff


47
E
Fl.
mp
Ag.
T. Bl.
p
Skr.
Ìyá.
Akb.
Mar.
mp
mf
p
pp
V (Sp).
V .
Pno.
pp


52
Fl.
Ag.
T. Bl.
Skr.
Ìyá.
Akb.
Mar.
V (Sp).
V .
Pno.

F

57

Fl.

Ag.

f

T. Bl.

Skr.

Ìyá.

Akb.

Mar.

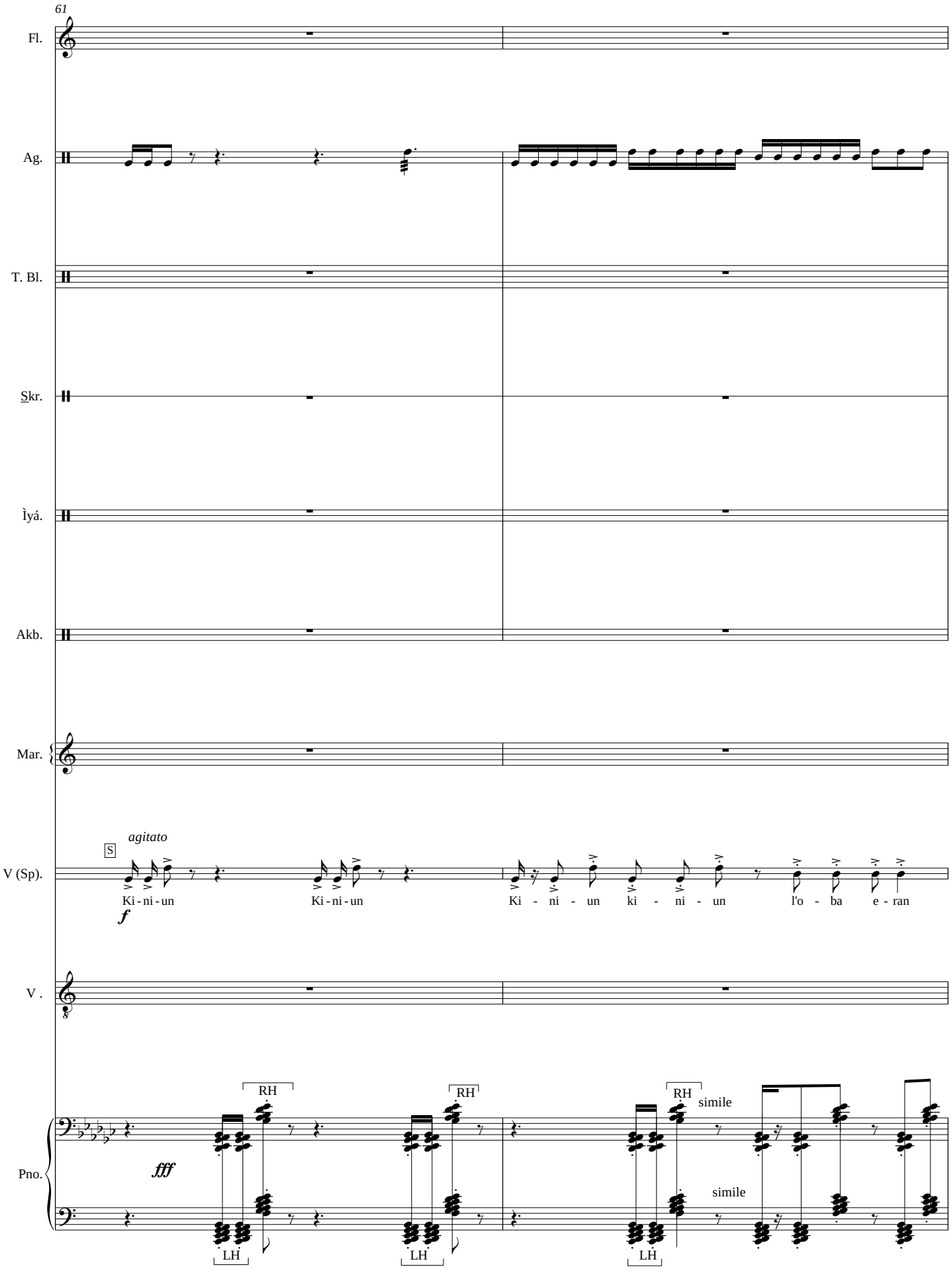
mf *f*

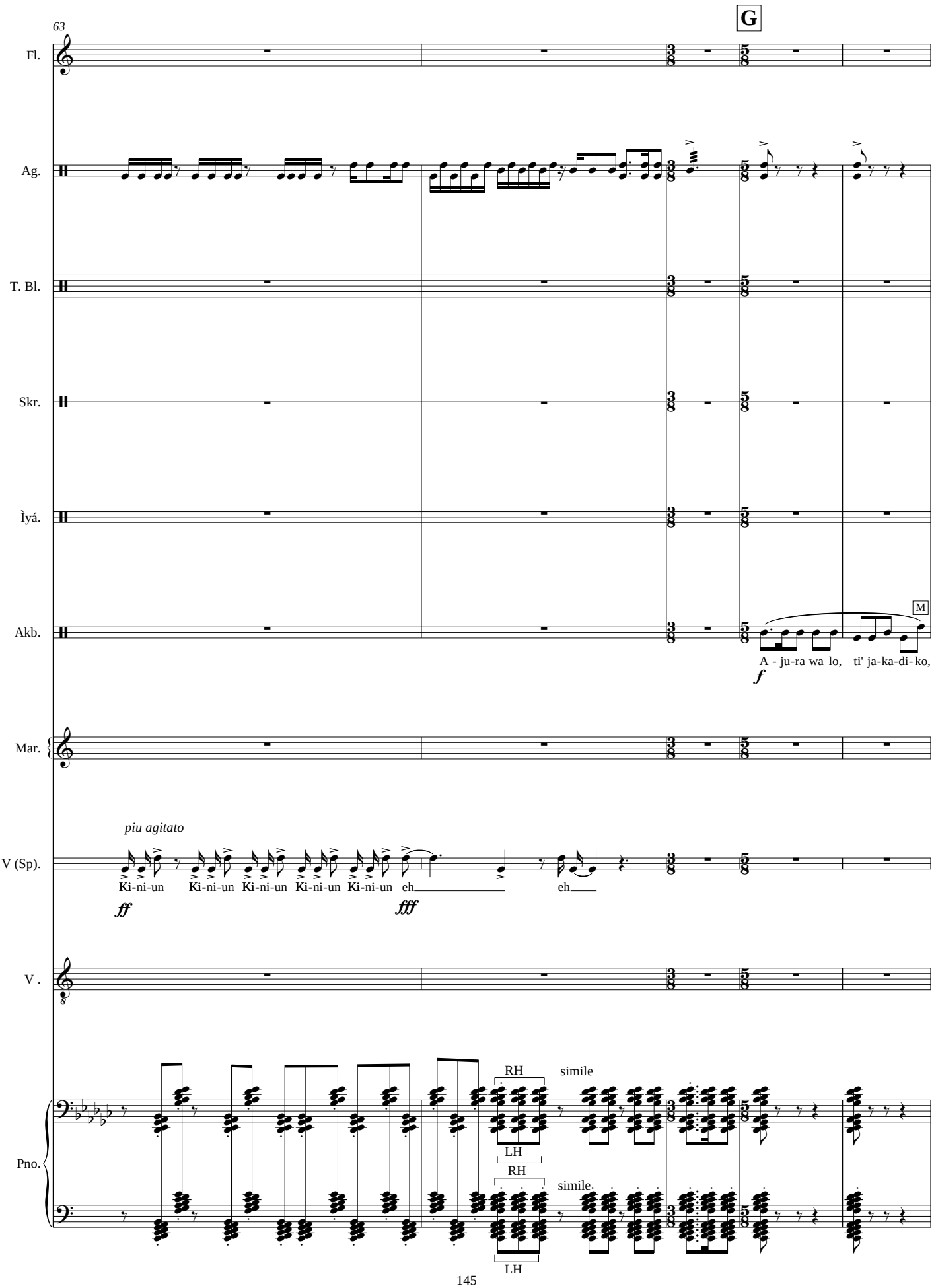
V (Sp).

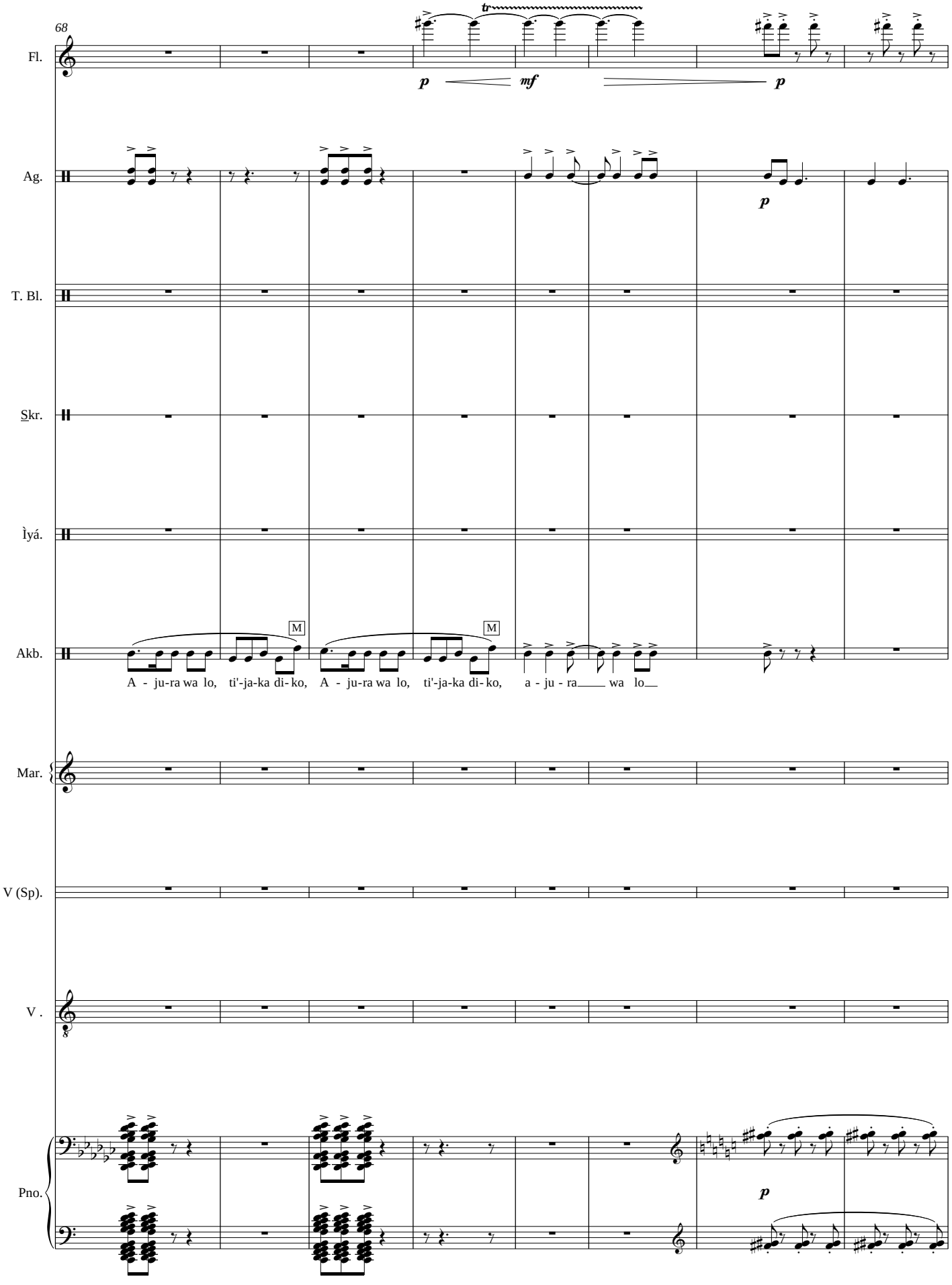
V .

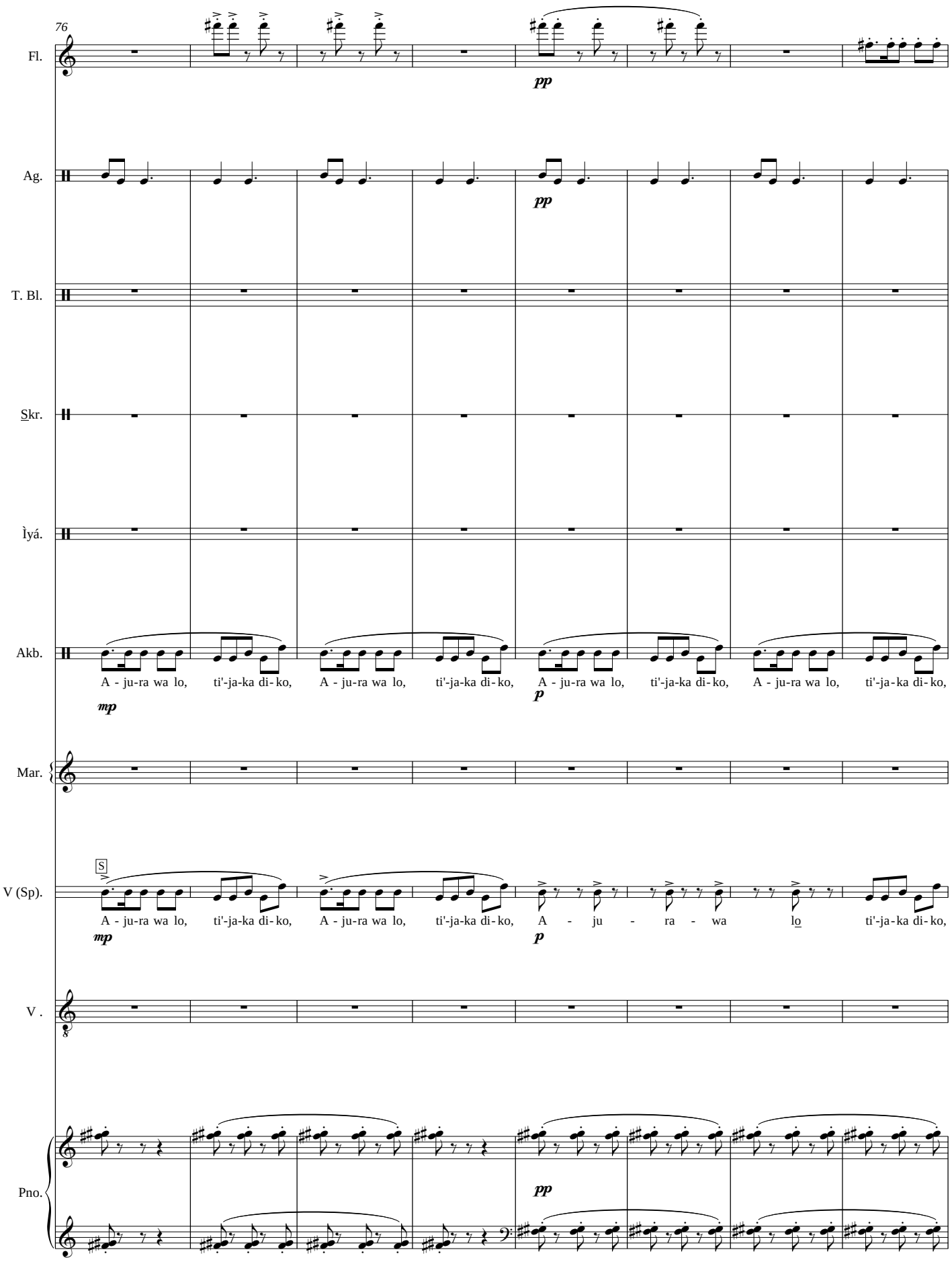
Pno.

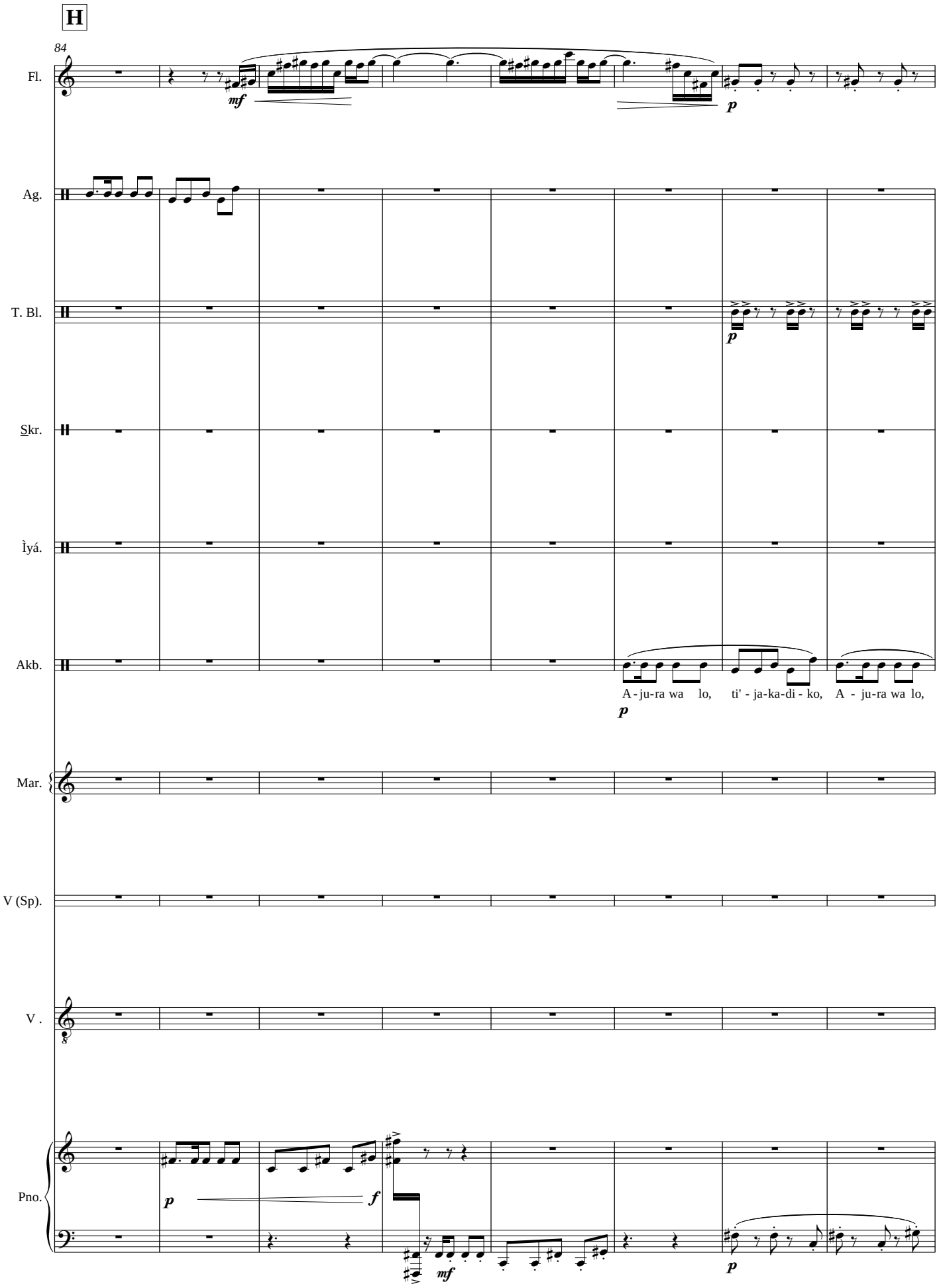
p *mp* *mf* *f* *f*

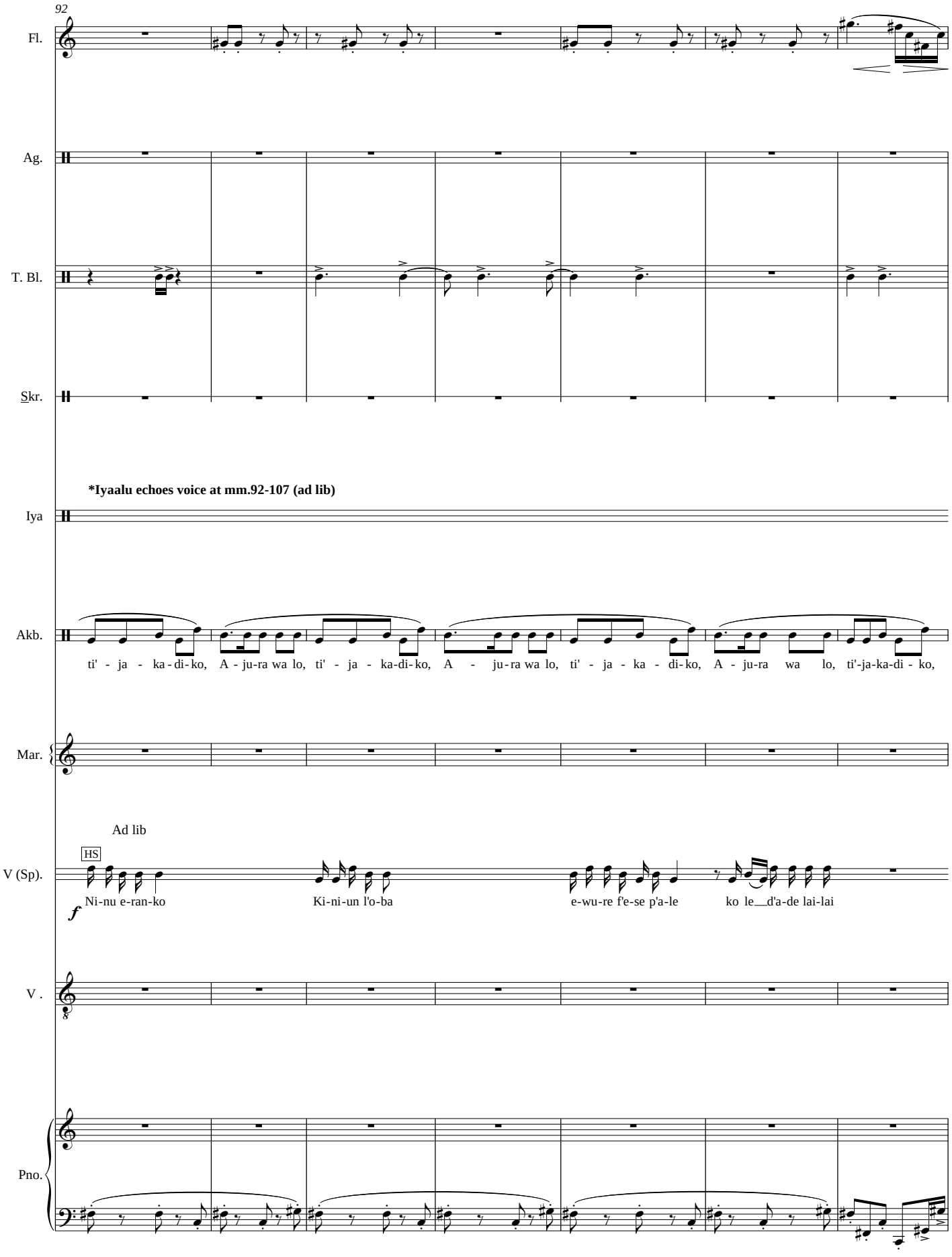

61
Fl.
Ag.
T. Bl.
Skr.
Ìyá.
Akb.
Mar.
agitato
S
V (Sp.)
Ki - ni - un
Ki - ni - un
Ki - ni - un ki - ni - un
l'o - ba e - ran
f
V .
8
RH
RH
RH
simile
simile
fff
Pno.
LH
LH
LH

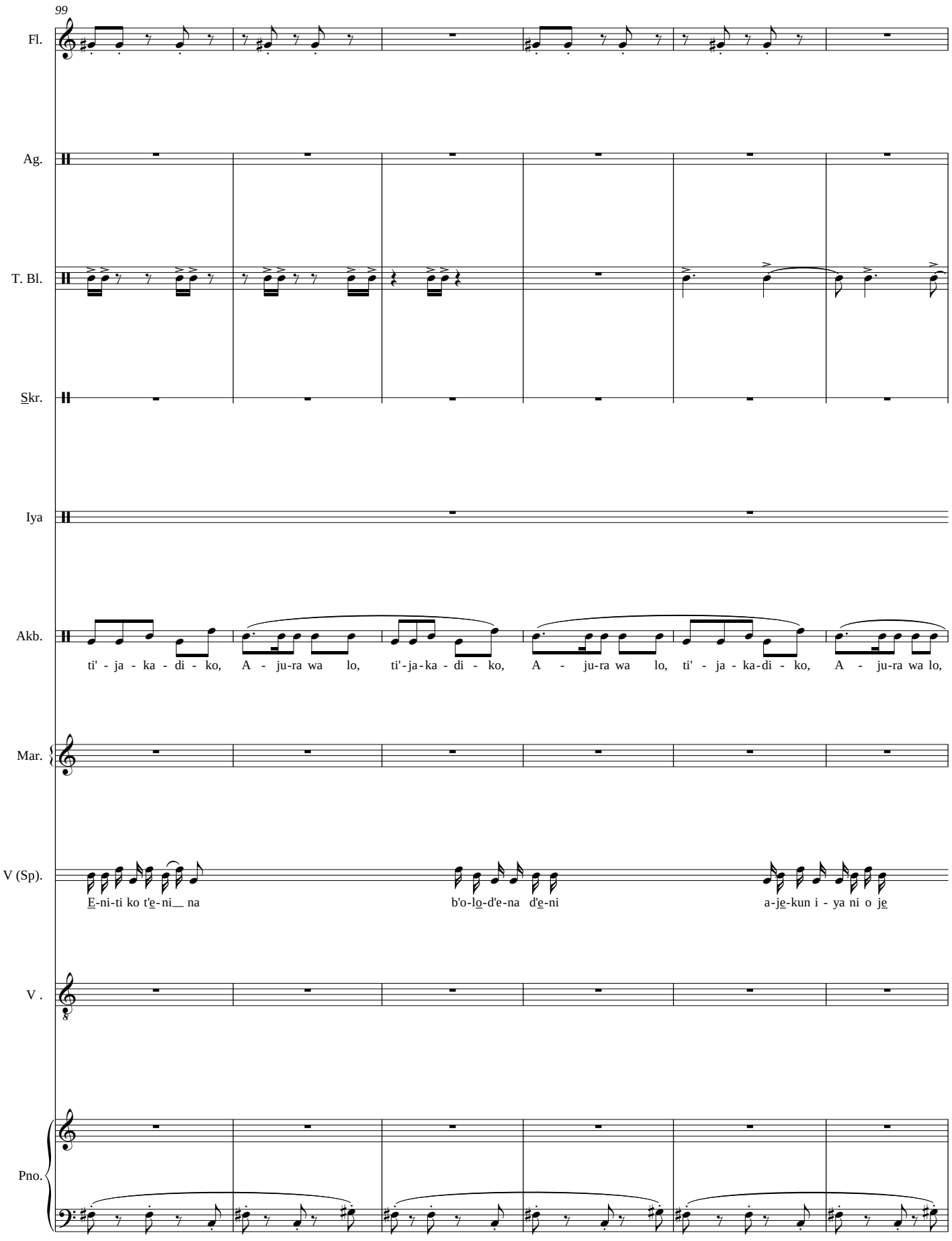

63
G
Fl.
Ag.
T. Bl.
Skr.
Ìyá.
Akb.
M
A - ju-ra wa lo, ti' ja-ka-di-ko,
f
Mar.
piu agitato
V (Sp.).
Ki-ni-un Ki-ni-un Ki-ni-un Ki-ni-un Ki-ni-un eh eh
ff
fff
V .
8
Pno.
RH
LH
simile
RH
LH
simile.

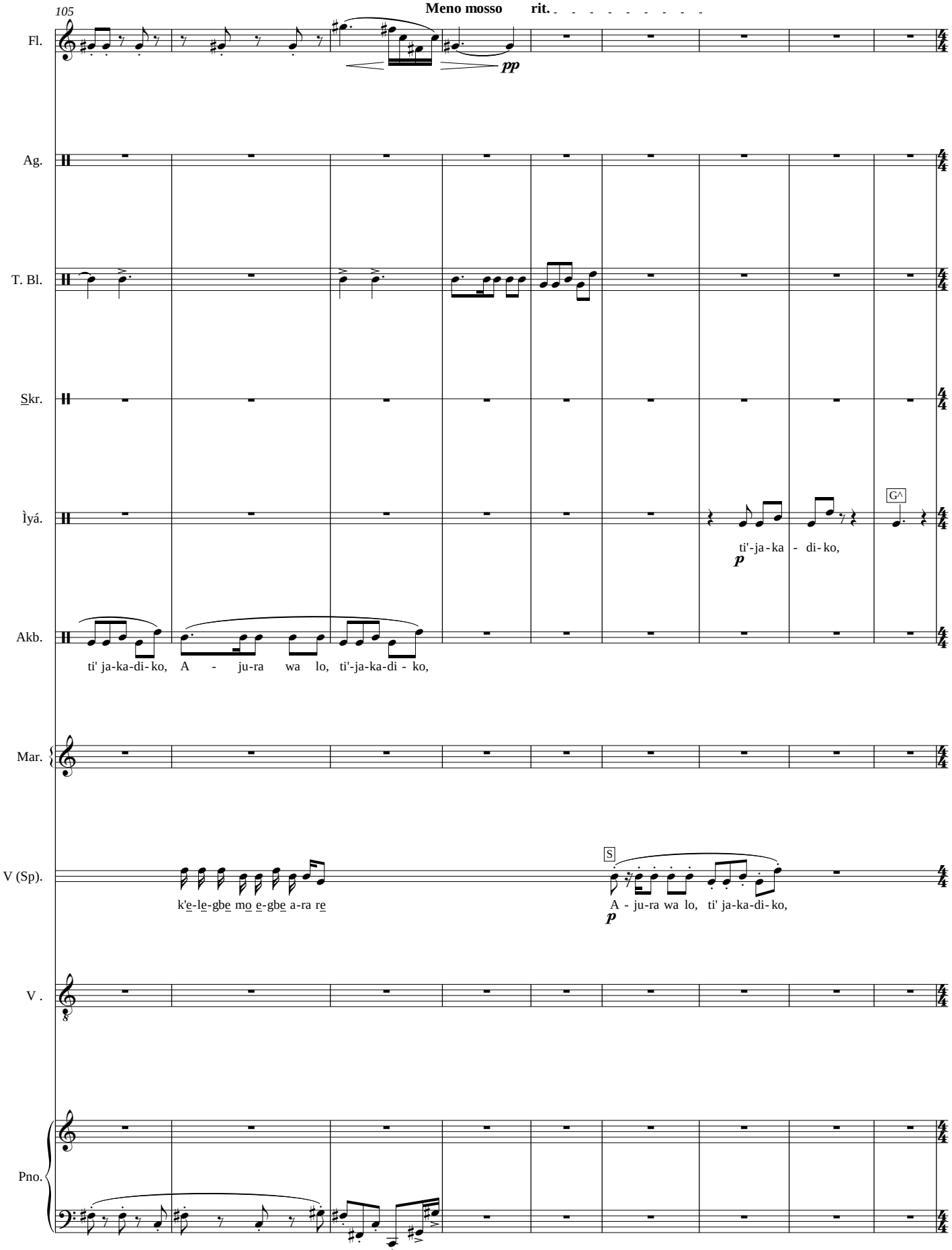

68
Fl.
tr
p
mf
p
Ag.
p
T. Bl.
Skr.
Ìyá.
Akb.
M
M
A - ju-ra wa lo, ti'-ja-ka di- ko, A - ju-ra wa lo, ti'-ja-ka di- ko, a - ju - ra wa lo
Mar.
V (Sp).
V .
8
Pno.
p

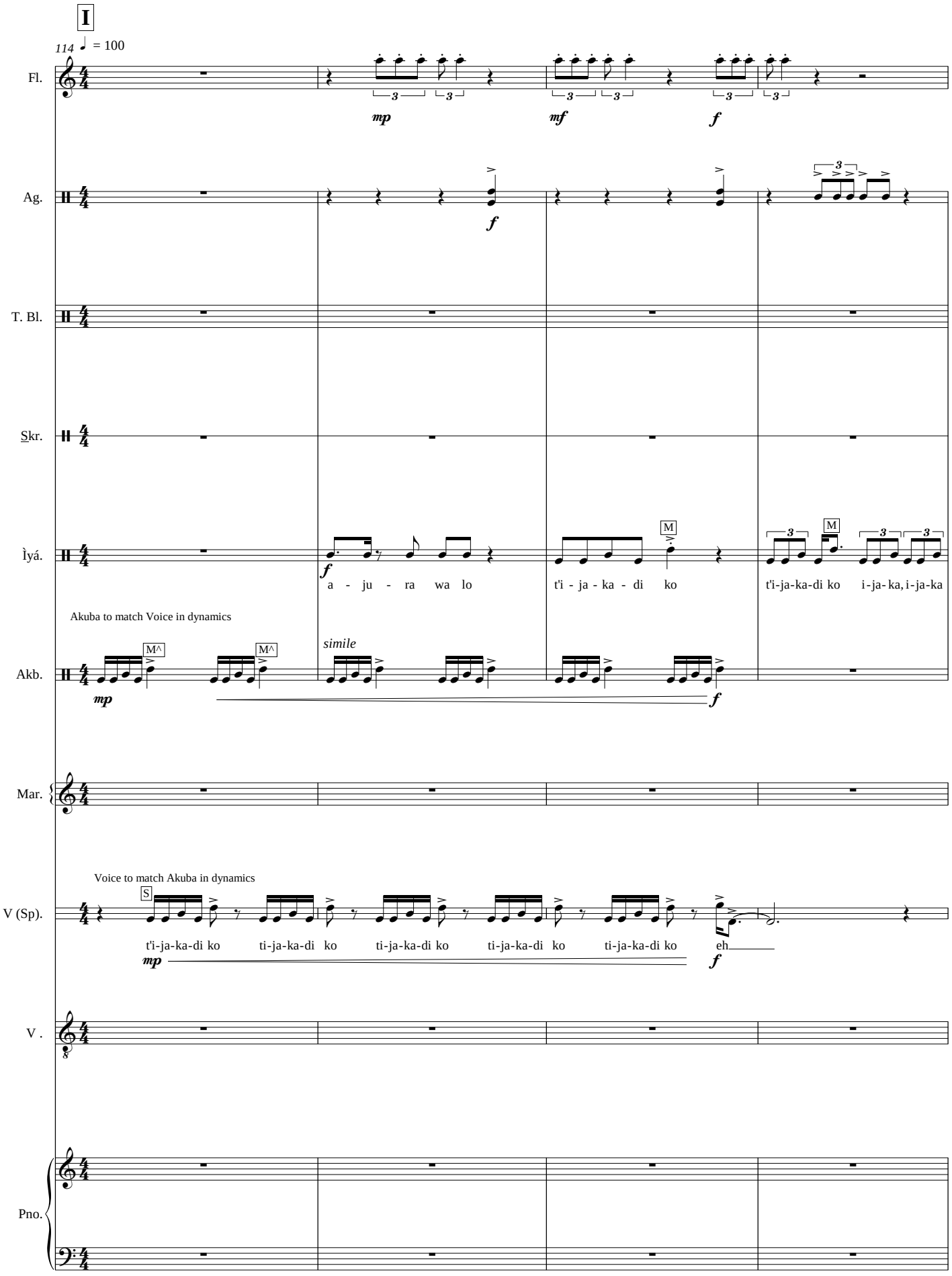

76
Fl.
pp
Ag.
pp
T. Bl.
Skr.
Ìyá.
Akb.
A - ju-ra wa lo, ti'-ja-ka di- ko, A - ju-ra wa lo, ti'-ja-ka di- ko, A - ju-ra wa lo, ti'-ja-ka di- ko, A - ju-ra wa lo, ti'-ja-ka di- ko,
mp
p
Mar.
S
V (Sp.)
A - ju-ra wa lo, ti'-ja-ka di- ko, A - ju-ra wa lo, ti'-ja-ka di- ko, A - ju - ra - wa lo ti'-ja-ka di- ko,
mp
p
V .
8
Pno.
pp

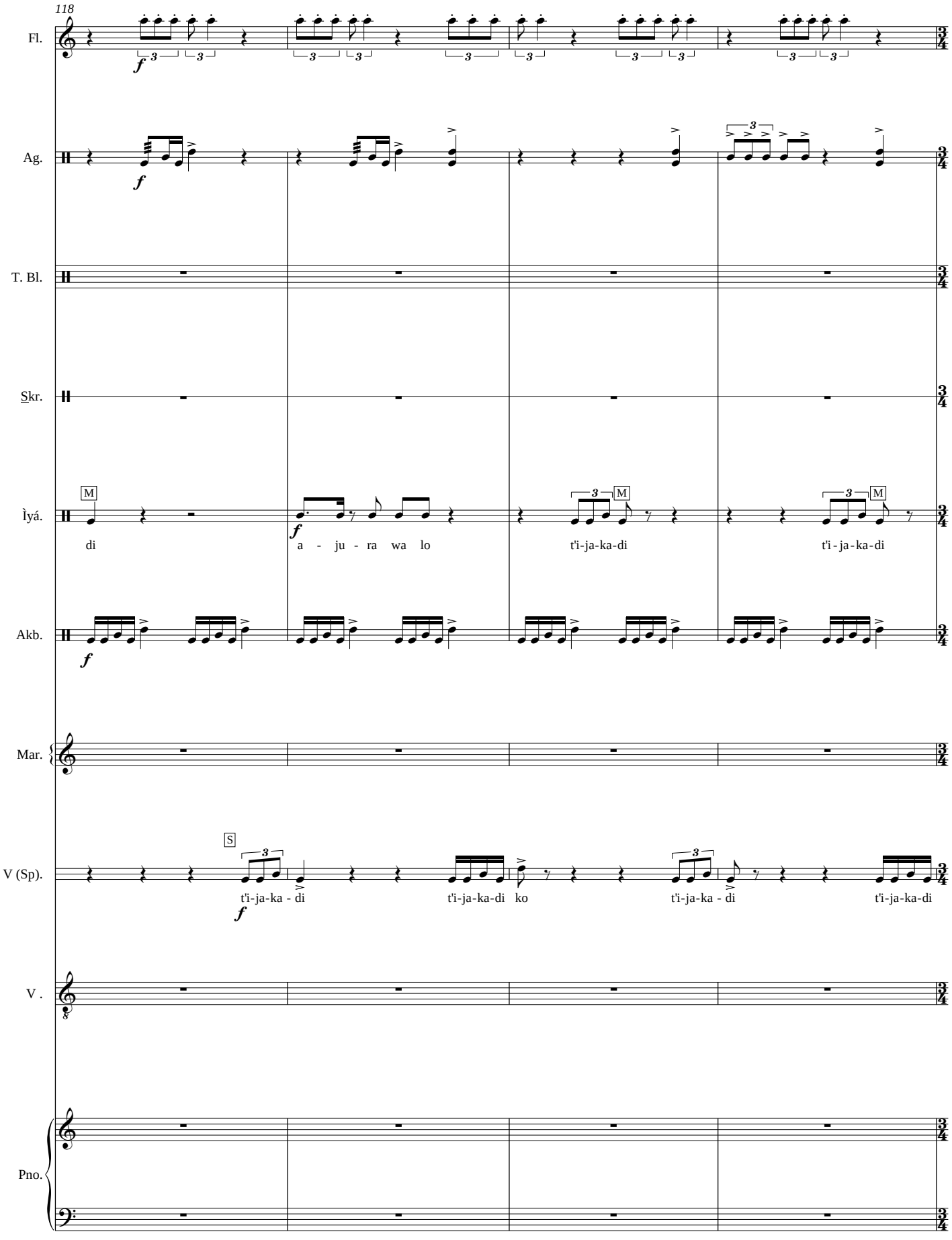

H
84
Fl.
mf
p
Ag.
T. Bl.
p
Skr.
Ìyá.
Akb.
A - ju-ra wa lo, ti' - ja-ka-di - ko, A - ju-ra wa lo,
p
Mar.
V (Sp).
V .
Pno.
p
f
mf
p

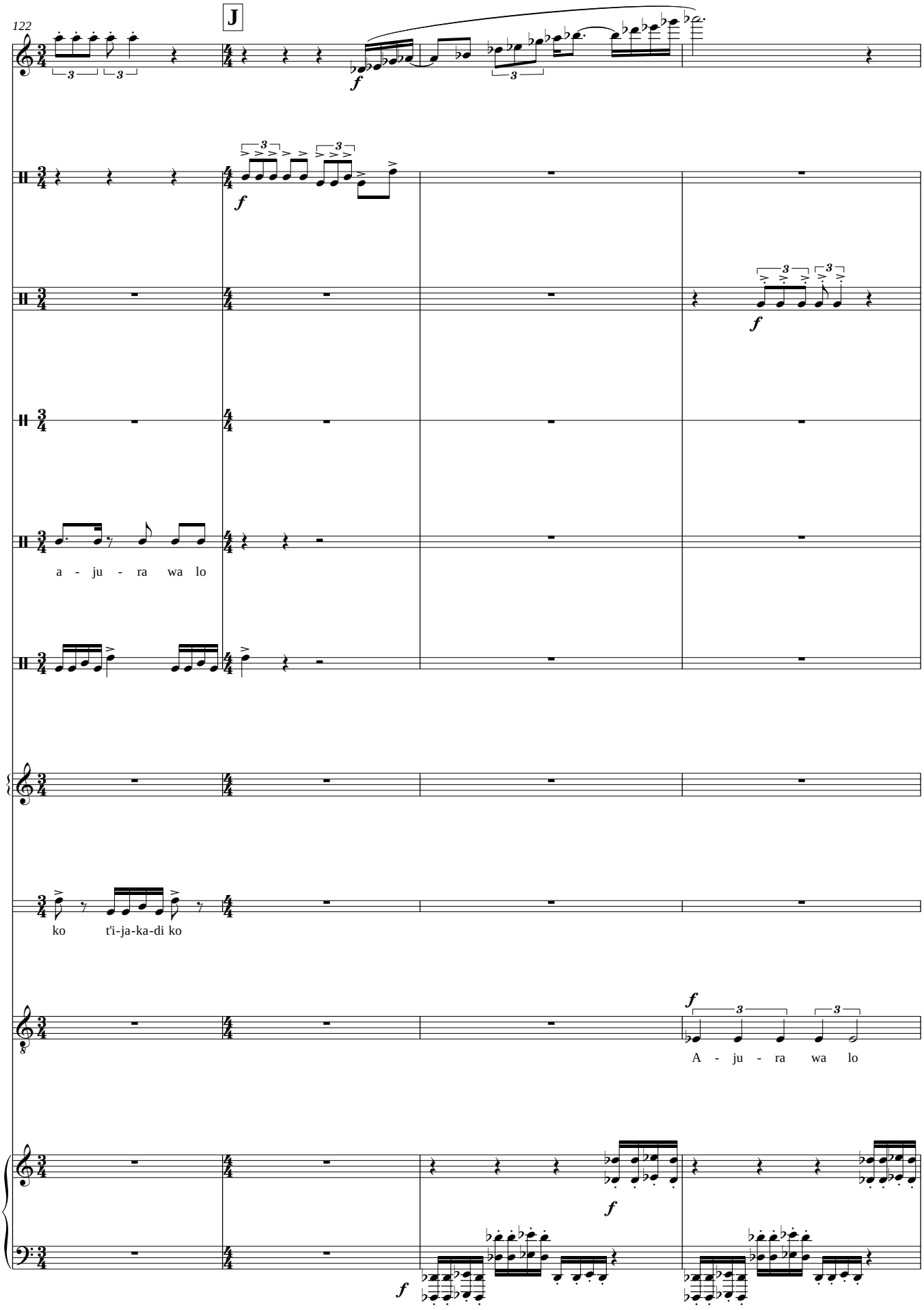

92
Fl.
Ag.
T. Bl.
Skr.
*Iyaalu echoes voice at mm.92-107 (ad lib)
Iya
Akb.
ti' - ja - ka - di - ko, A - ju - ra wa lo, ti' - ja - ka - di - ko, A - ju - ra wa lo, ti' - ja - ka - di - ko, A - ju - ra wa lo, ti' - ja - ka - di - ko,
Mar.
Ad lib
HS
V (Sp.).
f
Ni-nu e-ran-ko
Ki-ni-un l'o-ba
e-wu-re f'e-se p'a-le
ko le__d'a-de lai-lai
V .
Pno.

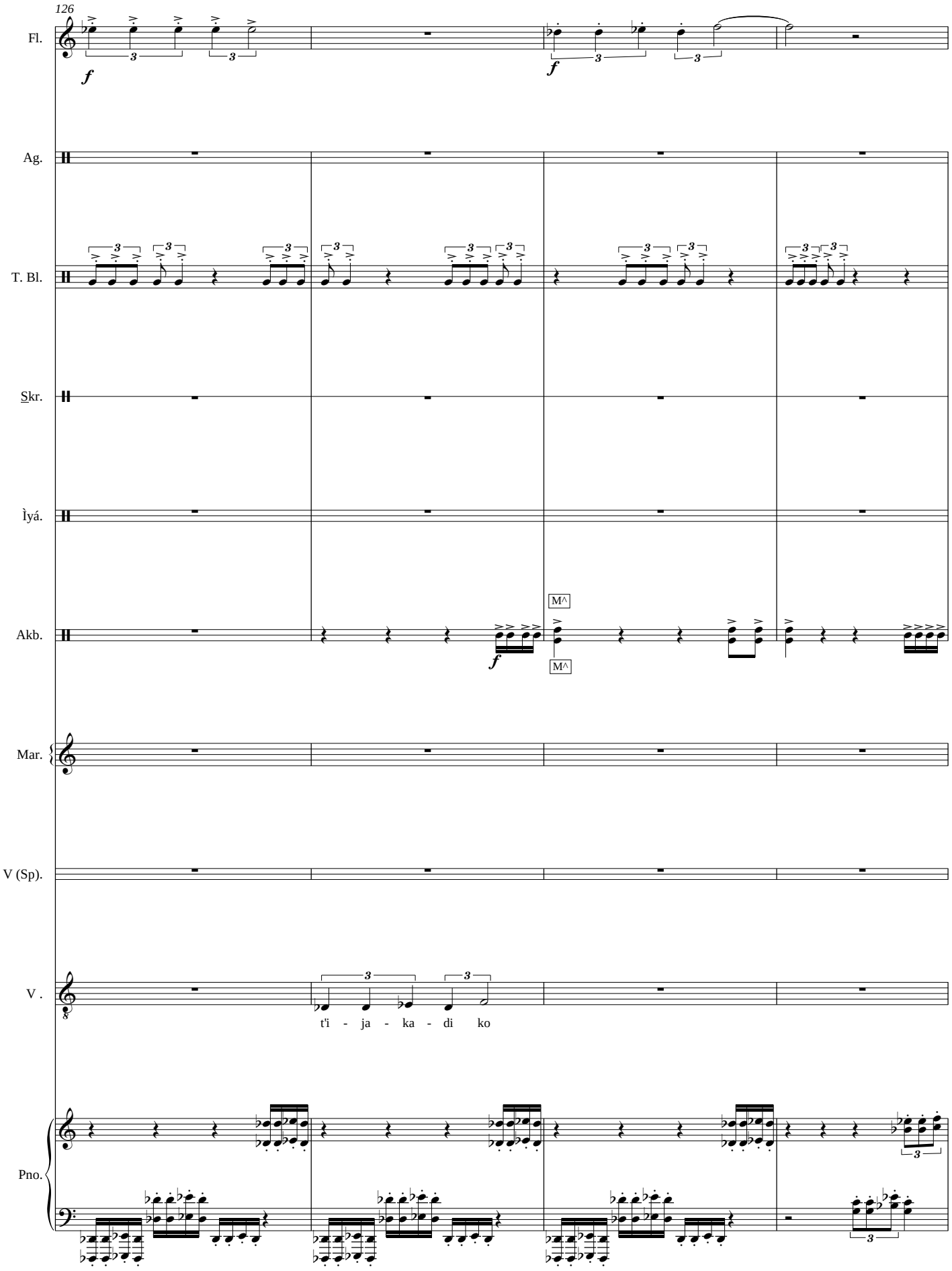

99
Fl.
Ag.
T. Bl.
Skr.
Iya
Akb.
ti' - ja - ka - di - ko, A - ju-ra wa lo, ti'-ja-ka - di - ko, A - ju-ra wa lo, ti' - ja - ka-di - ko, A - ju-ra wa lo,
Mar.
V (Sp).
E-ni-ti ko t'e-ni__ na
b'o-lo-d'e-na d'e-ni
a-je-kun i - ya ni o je
V .
Pno.

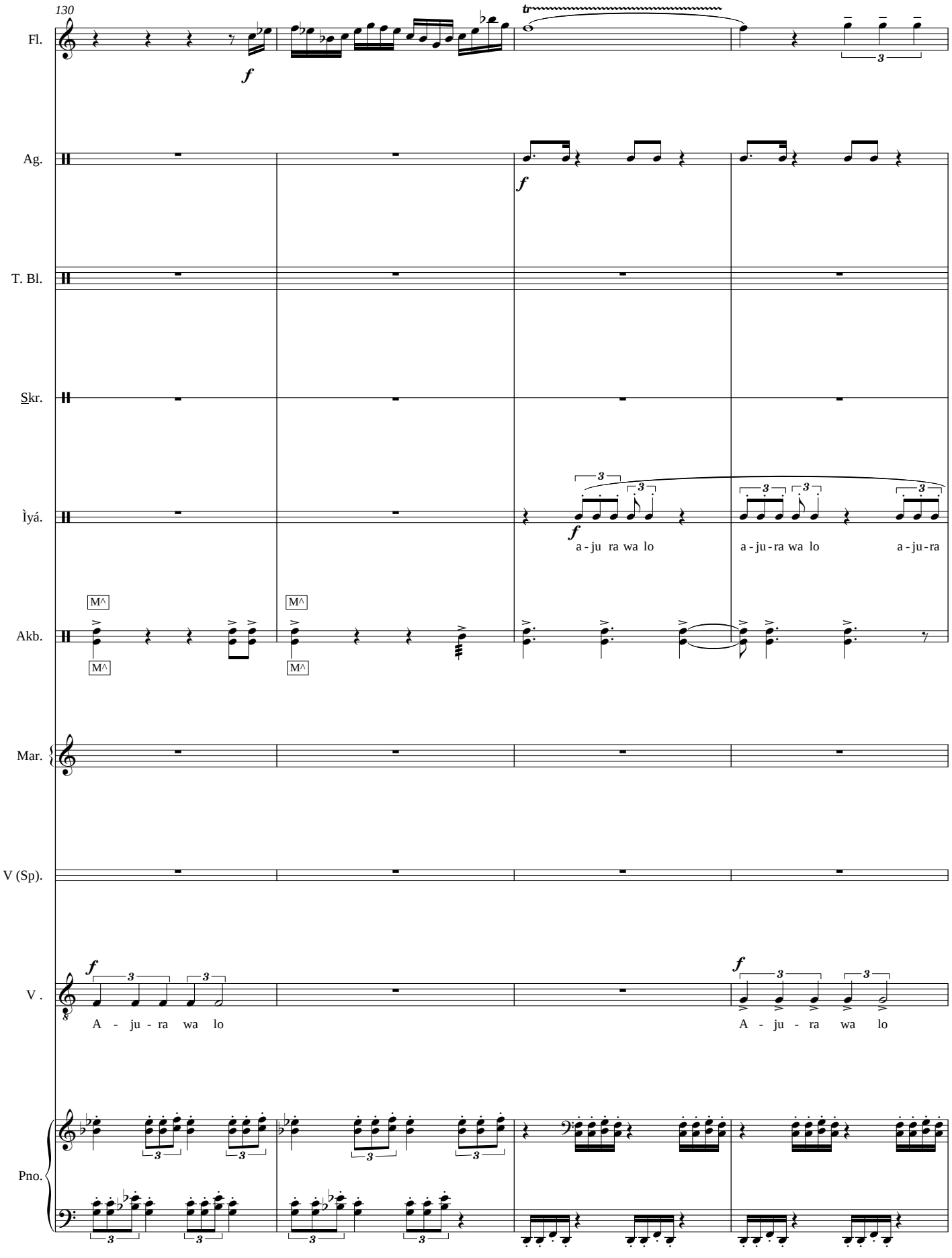

105
Meno mosso
rit.
Fl.
pp
Ag.
T. Bl.
Skr.
Ìyá.
ti'-ja-ka - di-ko,
p
G^
Akb.
ti' ja-ka-di-ko, A - ju-ra wa lo, ti'-ja-ka-di - ko,
Mar.
V (Sp.).
k'e-le-gbe mo e-gbe a-ra re
S
A - ju-ra wa lo, ti' ja-ka-di-ko,
p
V .
8
Pno.

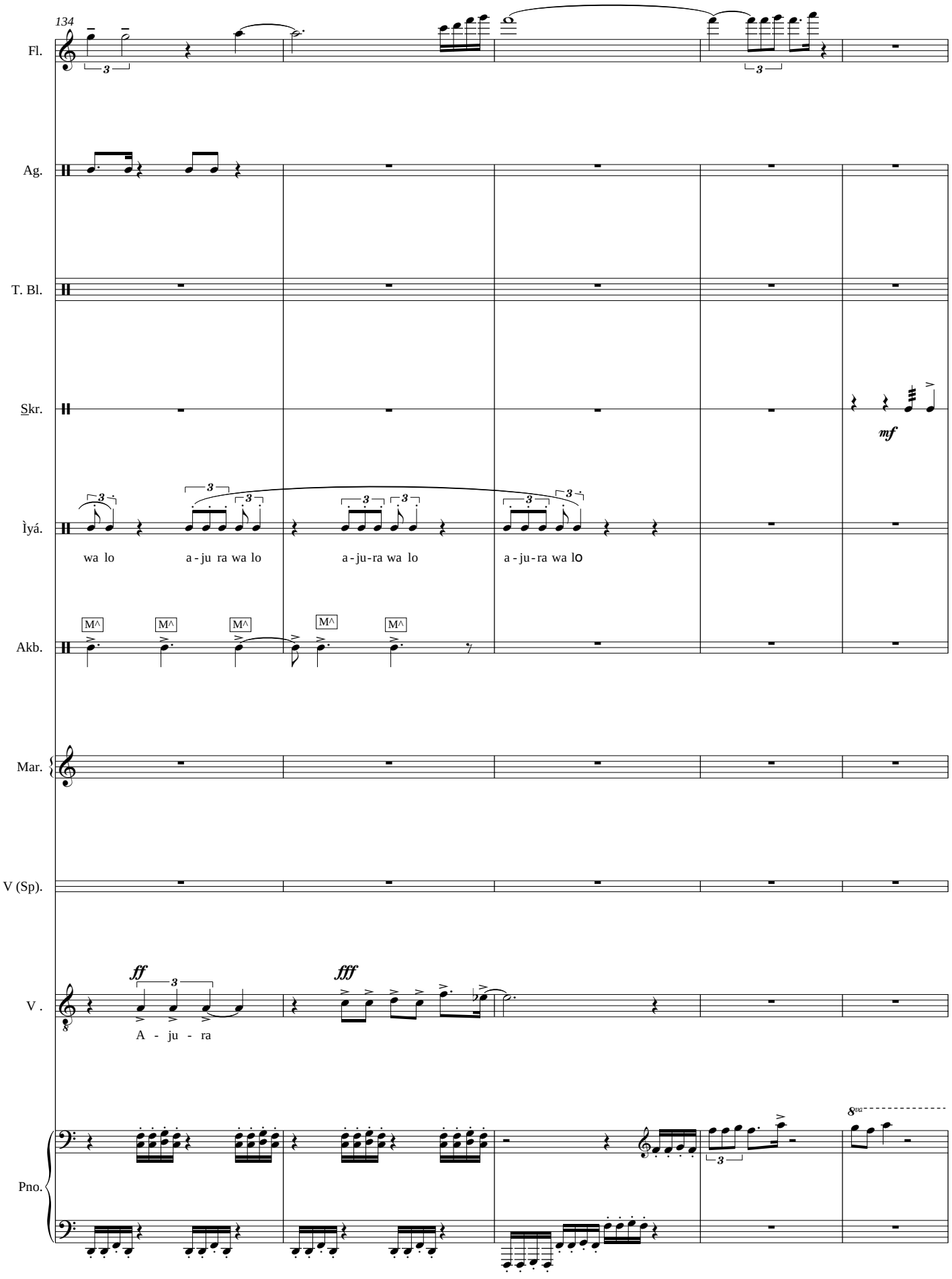

I
114 ♩ = 100
Fl.
mp
mf
f
Ag.
f
T. Bl.
Skr.
Ìyá.
f
a - ju - ra wa lo
t'i - ja - ka - di ko
t'i-ja-ka-di ko i-ja-ka, i-ja-ka
Akuba to match Voice in dynamics
simile
Akb.
mp
f
Mar.
Voice to match Akuba in dynamics
V (Sp).
t'i-ja-ka-di ko ti-ja-ka-di ko ti-ja-ka-di ko ti-ja-ka-di ko ti-ja-ka-di ko eh
mp
f
V .
Pno.

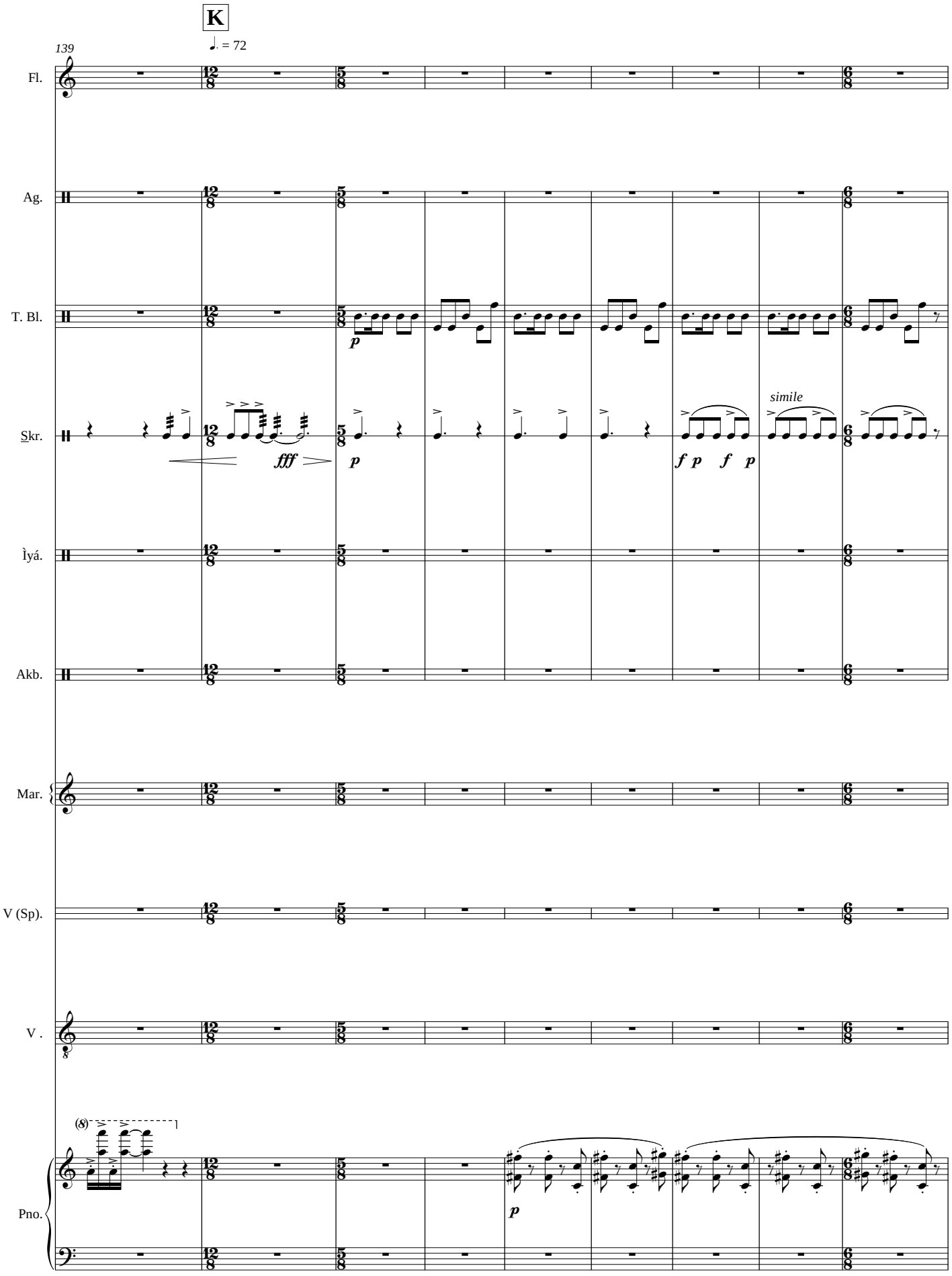

118
Fl.
Ag.
T. Bl.
Skr.
Ìyá.
di
a - ju - ra wa lo
t'i-ja-ka-di
t'i-ja-ka-di
Akb.
Mar.
V (Sp).
t'i-ja-ka - di
t'i-ja-ka-di ko
t'i-ja-ka - di
t'i-ja-ka-di
V .
Pno.

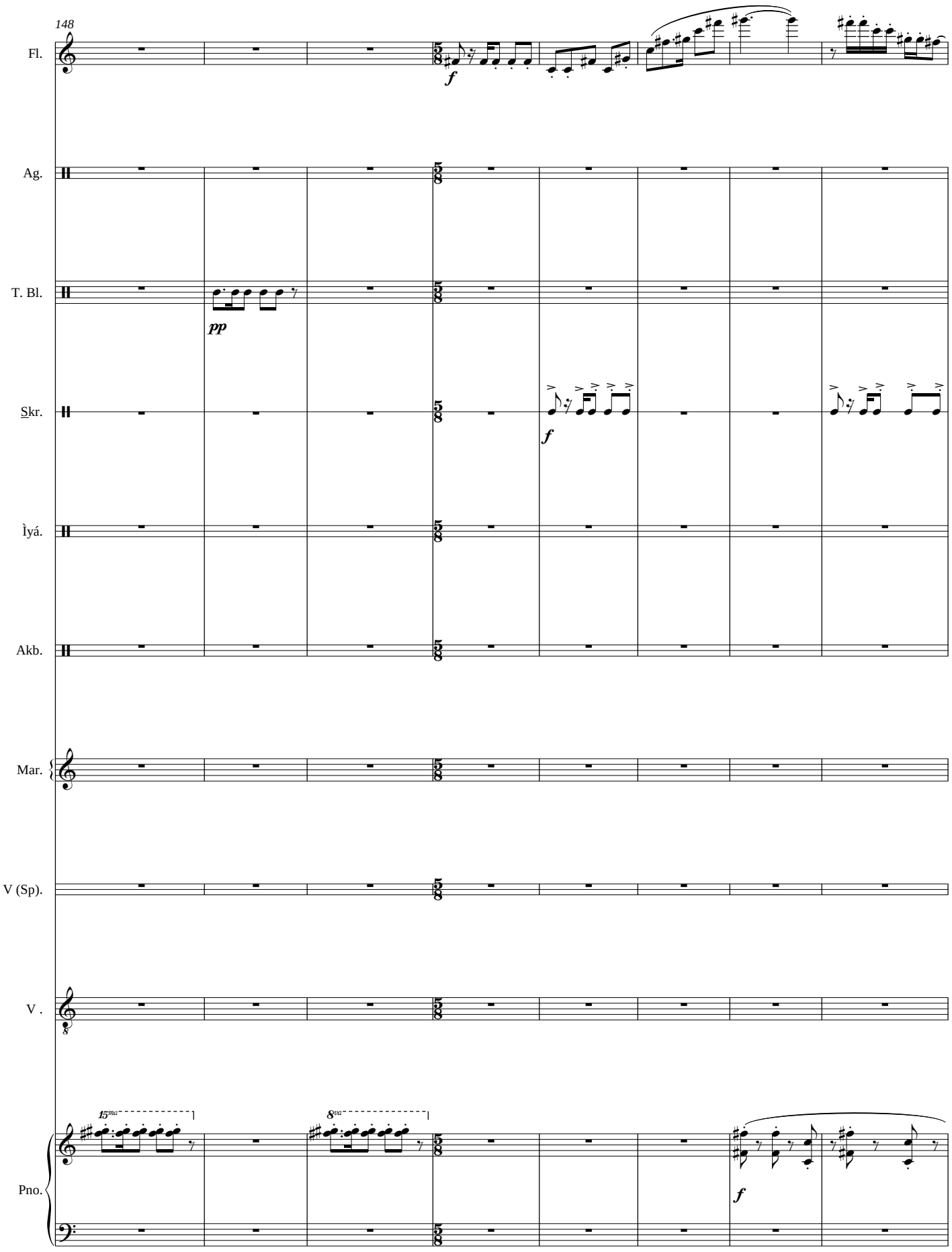

122
J
Fl.
Ag.
T. Bl.
Skr.
Ìyá.
a - ju - ra wa lo
Akb.
Mar.
V (Sp).
ko t'i-ja-ka-di ko
V .
A - ju - ra wa lo
Pno.

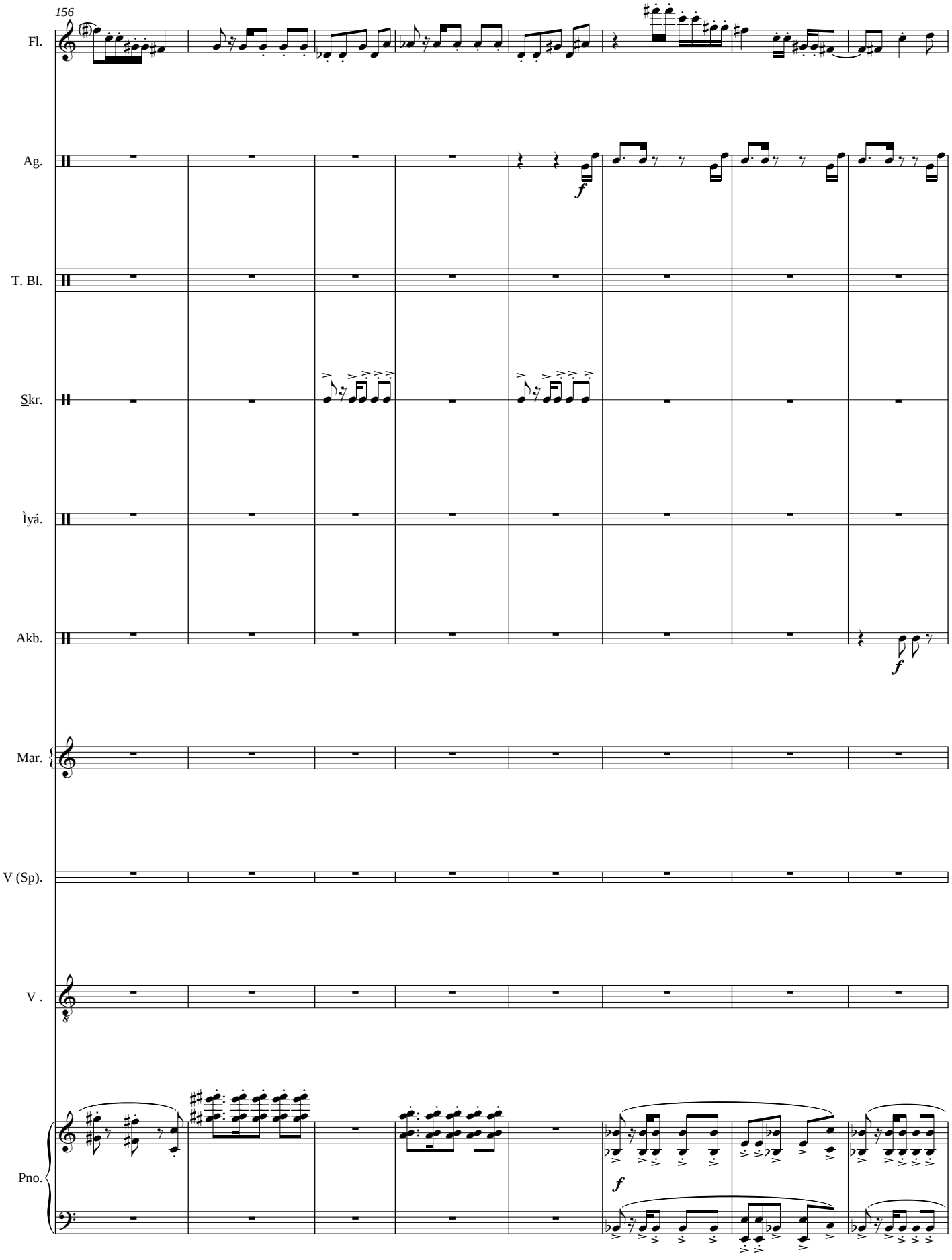

126
Fl.
Ag.
T. Bl.
Skr.
Ìyá.
Akb.
Mar.
V (Sp).
V .
Pno.
t'i - ja - ka - di ko

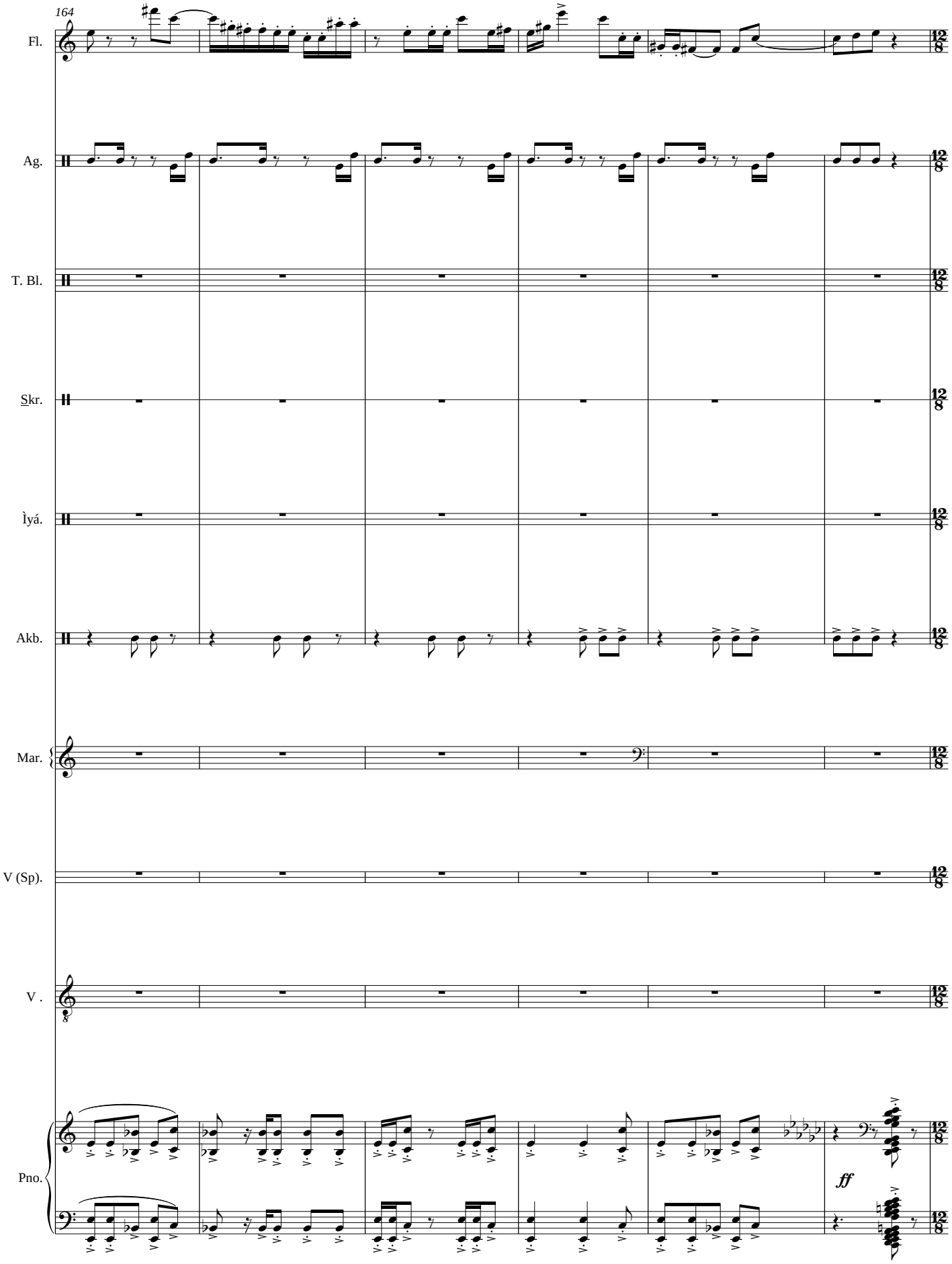

130
Fl.
Ag.
T. Bl.
Skr.
Ìyá.
a - ju ra wa lo
a - ju - ra wa lo
a - ju - ra
Akb.
Mar.
V (Sp).
V .
A - ju - ra wa lo
A - ju - ra wa lo
Pno.

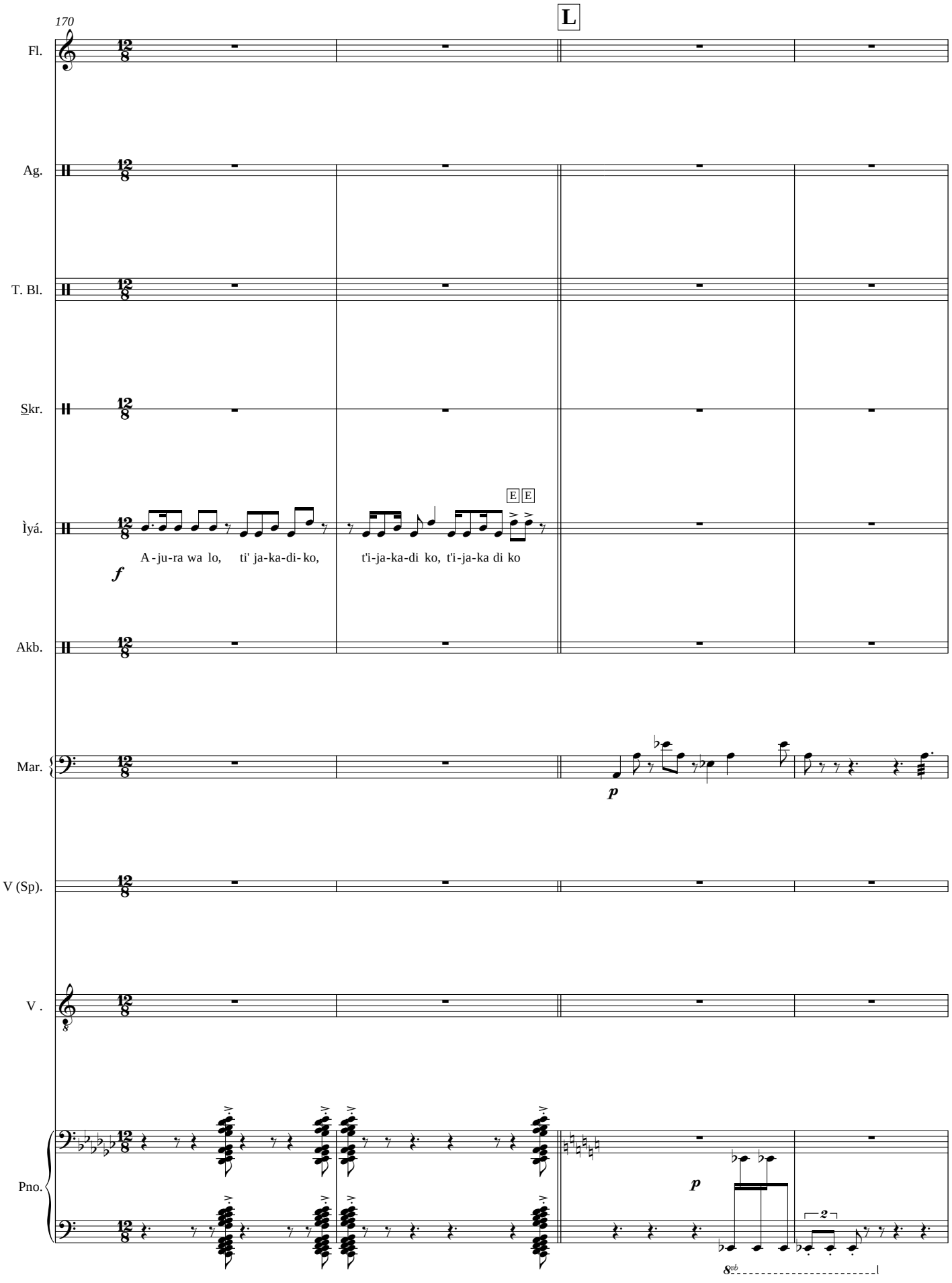

134
Fl.
Ag.
T. Bl.
Skr.
mf
Ìyá.
wa lo
a - ju ra wa lo
a - ju - ra wa lo
a - ju - ra wa lo
Akb.
Mar.
V (Sp).
ff
fff
V .
A - ju - ra
Pno.
8va

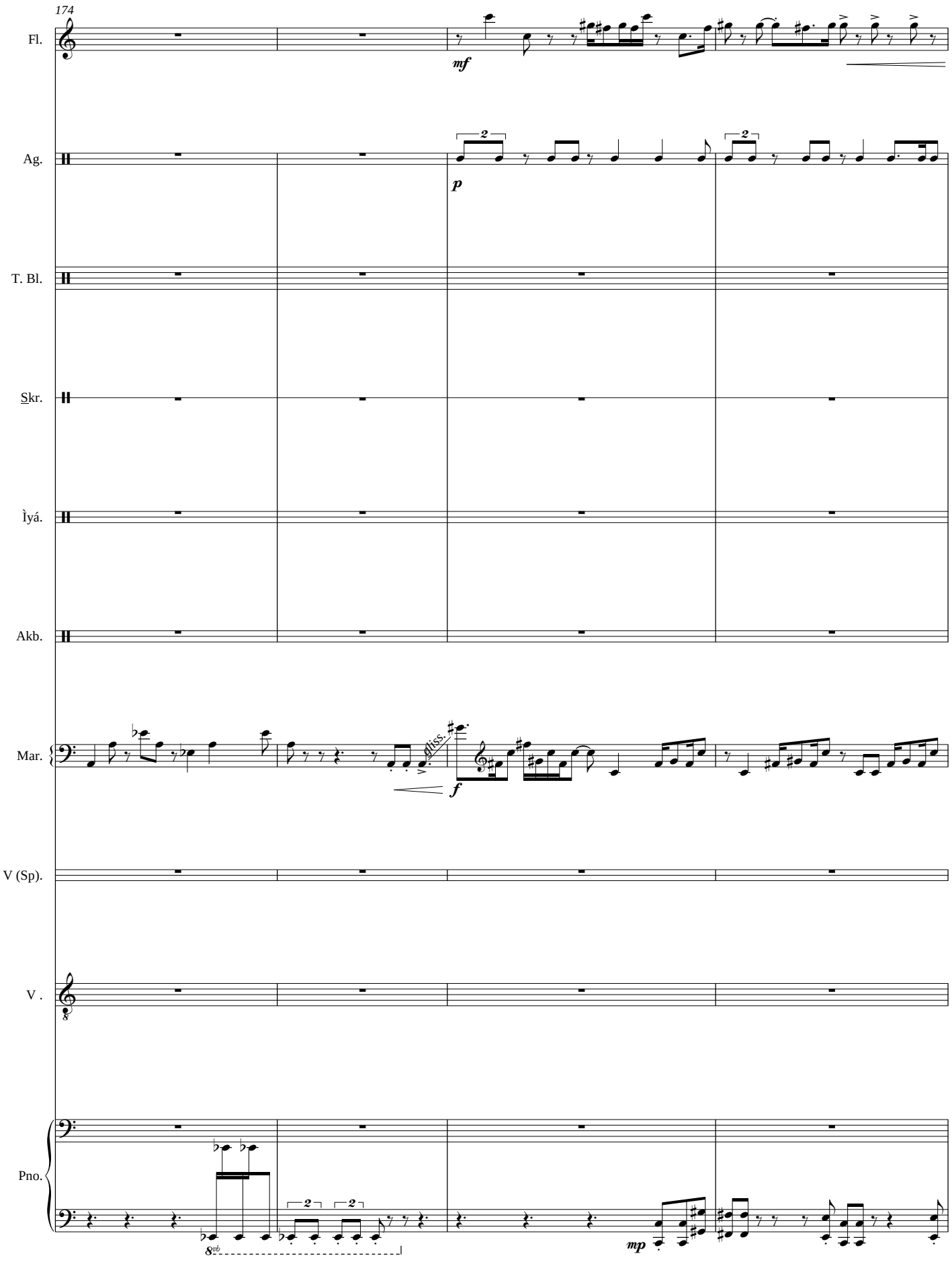

K
♩. = 72
139
Fl.
Ag.
T. Bl.
Skr.
Ìyá.
Akb.
Mar.
V (Sp).
V .
Pno.
simile
fff
p
f p f p
(8)

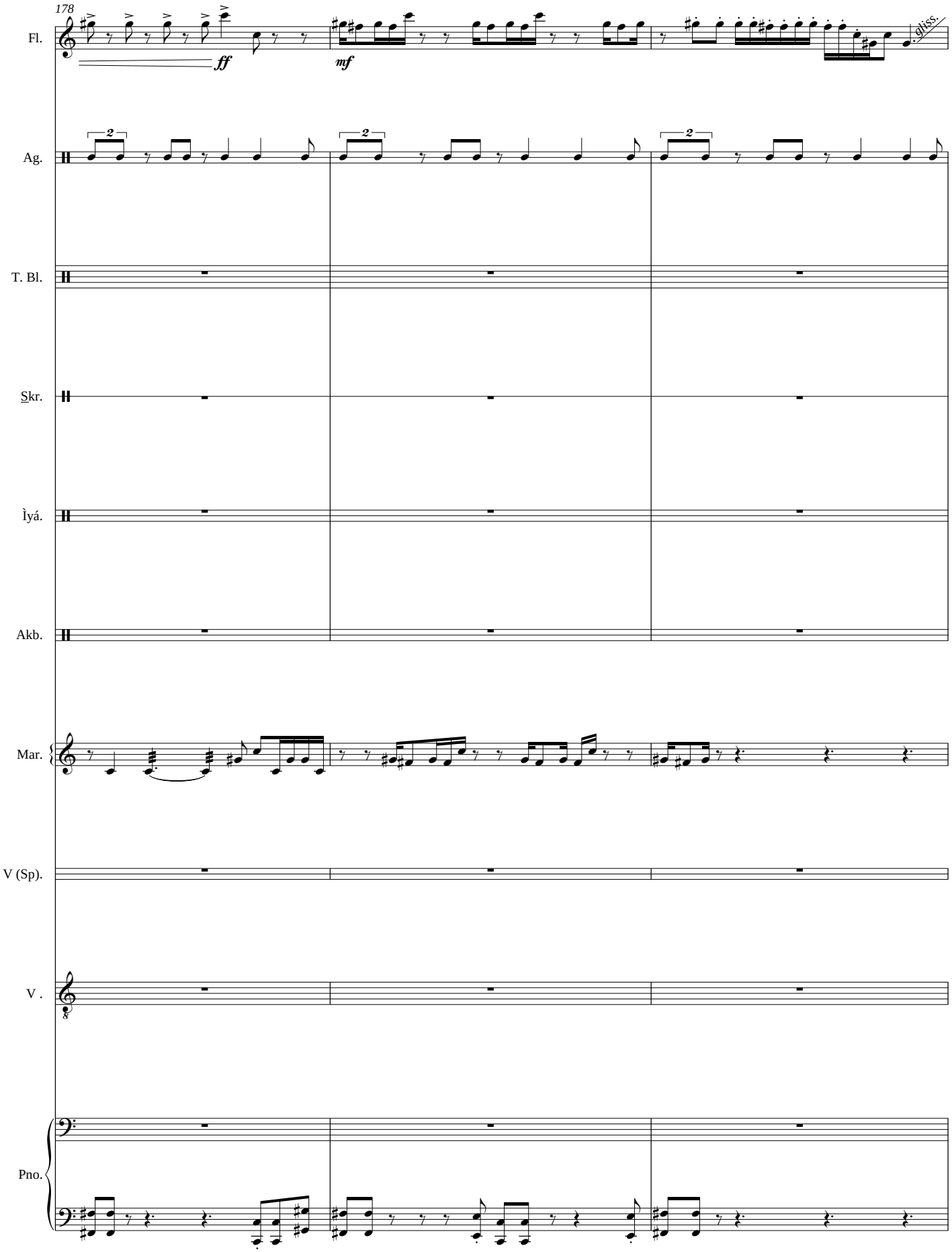

148
Fl.
Ag.
T. Bl.
Skr.
Ìyá.
Akb.
Mar.
V (Sp).
V .
Pno.
f
pp
f
15ma
8va
f

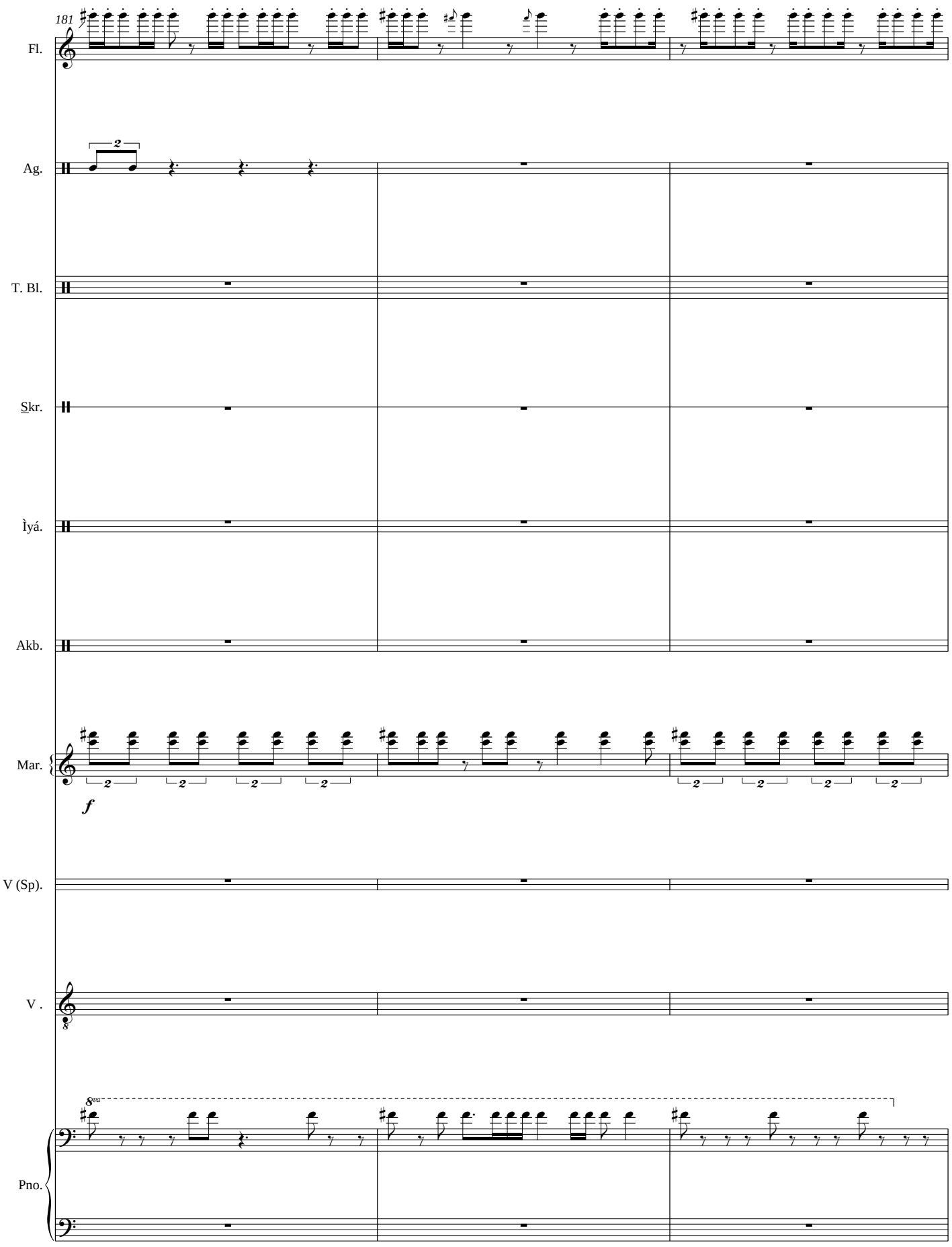

156
Fl.
Ag.
T. Bl.
Skr.
Ìyá.
Akb.
Mar.
V (Sp).
V .
Pno.
f
f
f

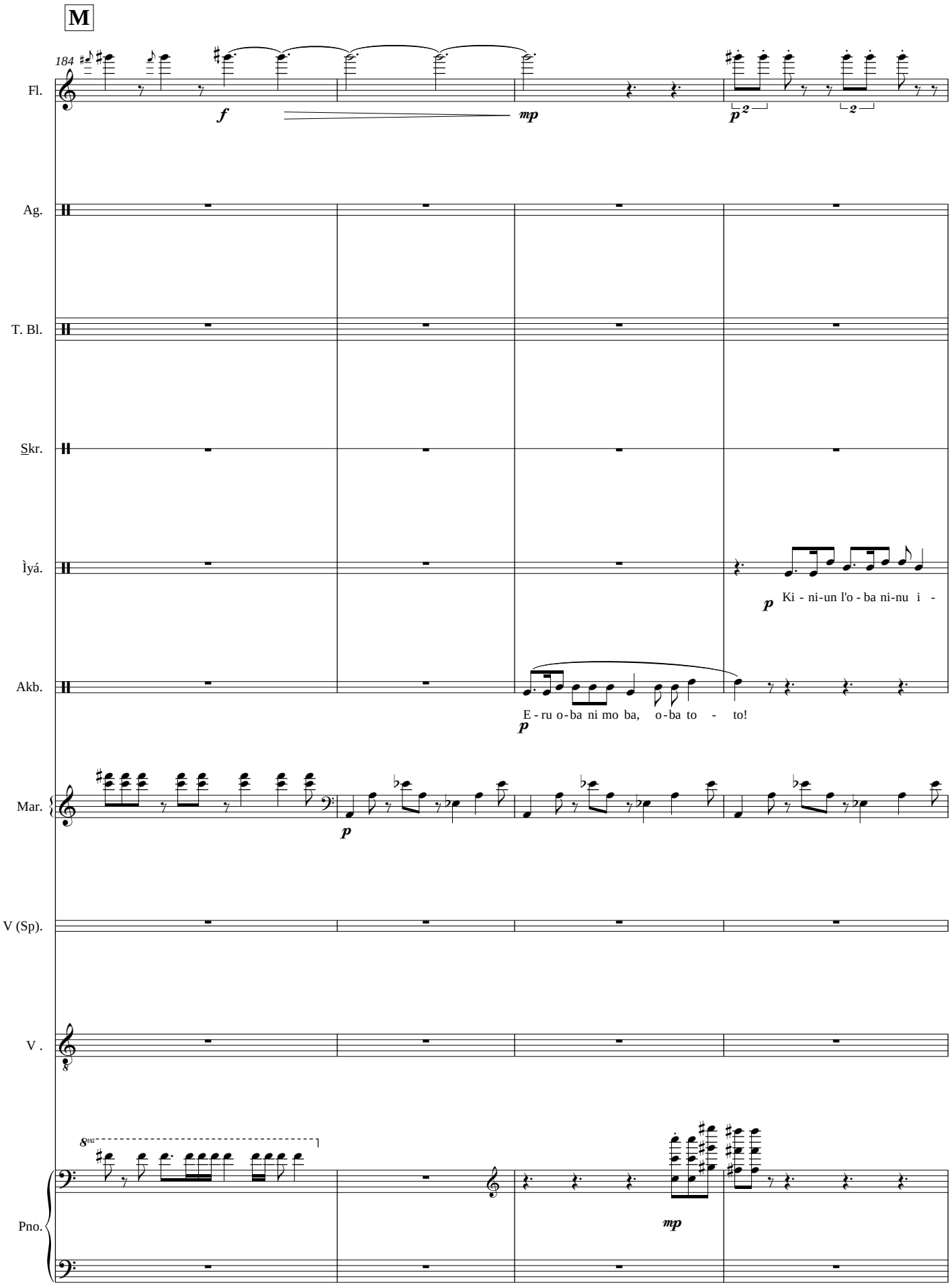

164
Fl.
Ag.
T. Bl.
Skr.
Ìyá.
Akb.
Mar.
V (Sp).
V .
Pno.
ff

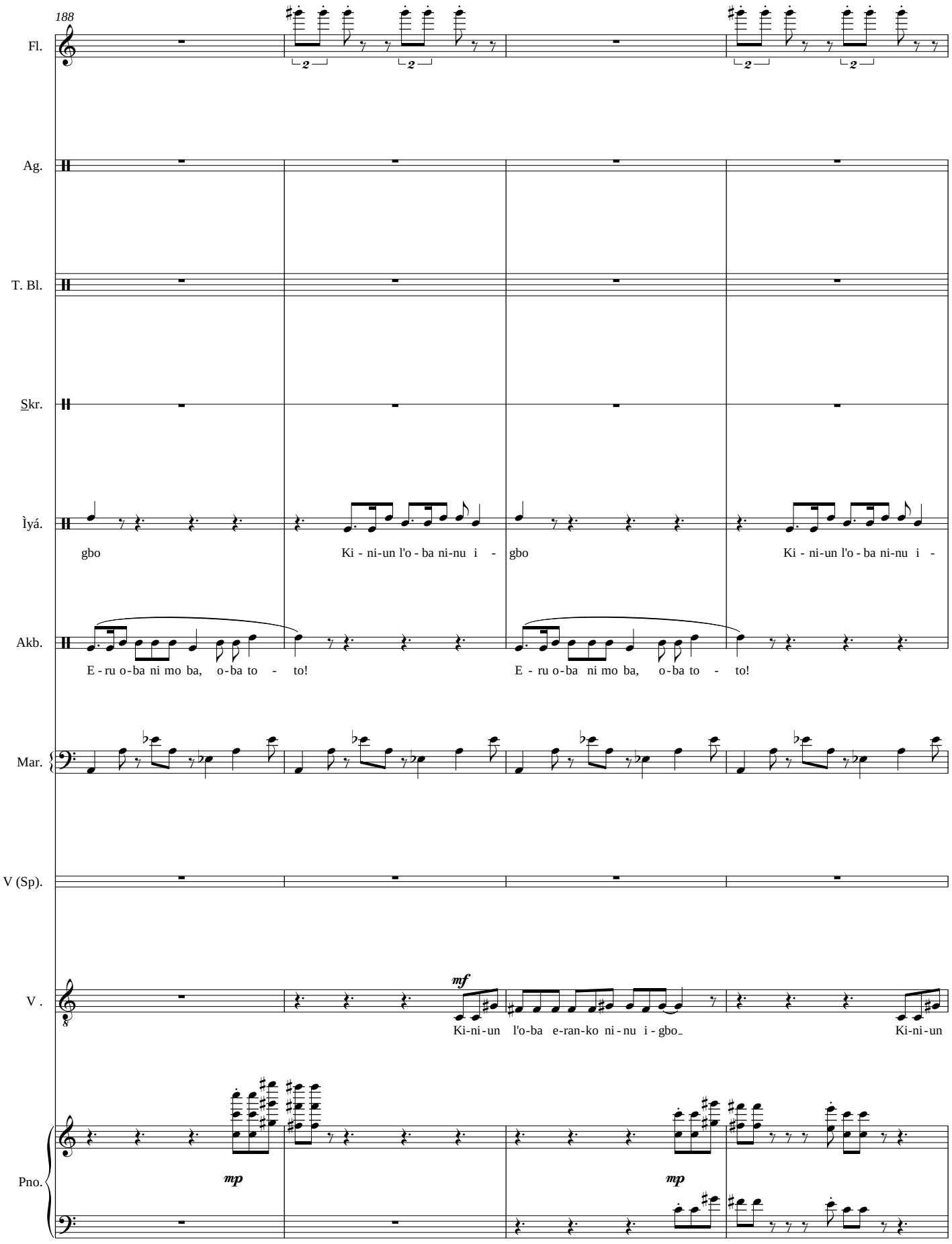

170
L
Fl.
Ag.
T. Bl.
Skr.
Ìyá.
E E
A-ju-ra wa lo, ti' ja-ka-di-ko, t'i-ja-ka-di ko, t'i-ja-ka di ko
f
Akb.
Mar.
p
V (Sp).
V .
Pno.
p
2
8vb

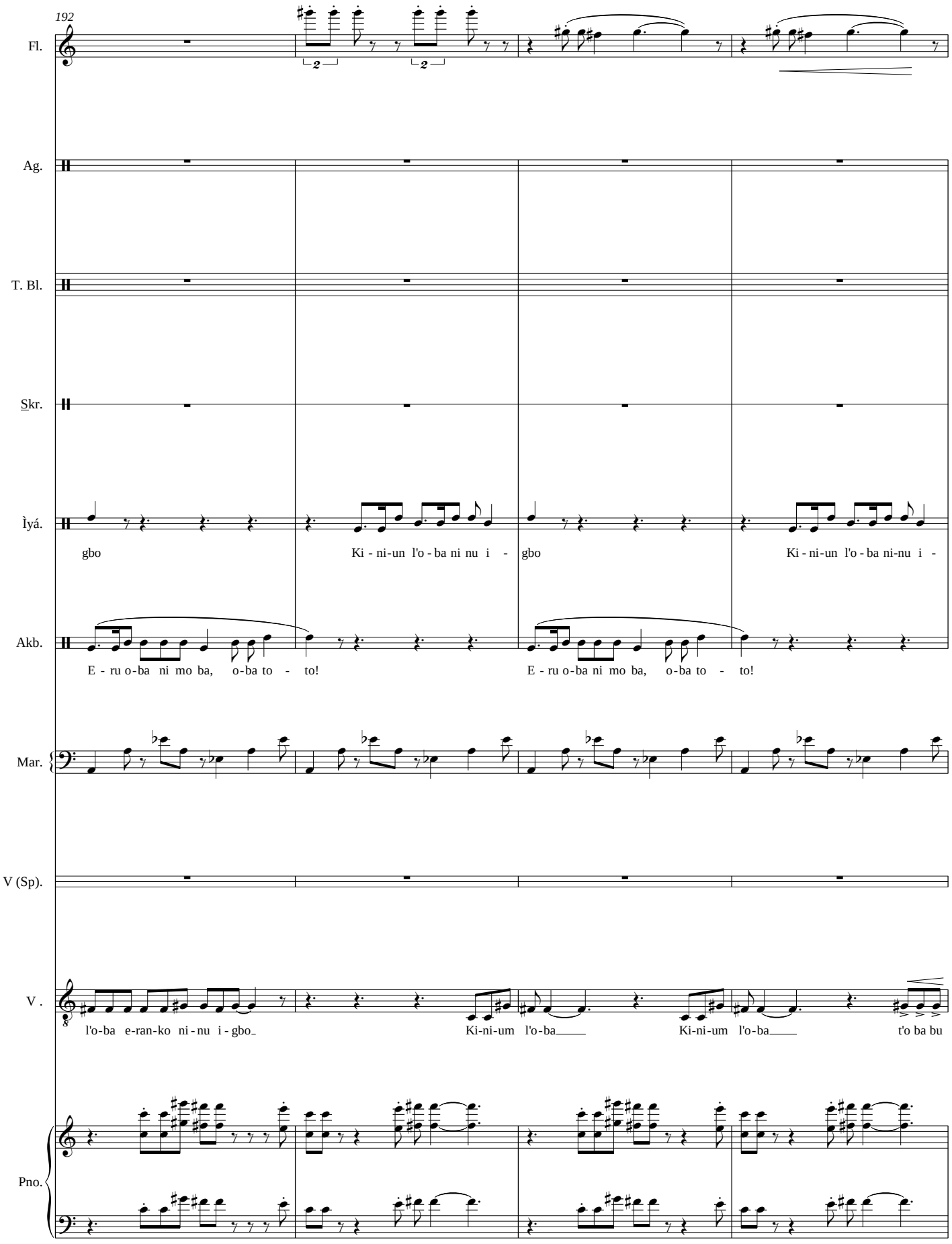

174
Fl.
mf
Ag.
2
p
T. Bl.
Skr.
Ìyá.
Akb.
Mar.
gliss.
f
V (Sp).
V .
8
Pno.
8vb
mp

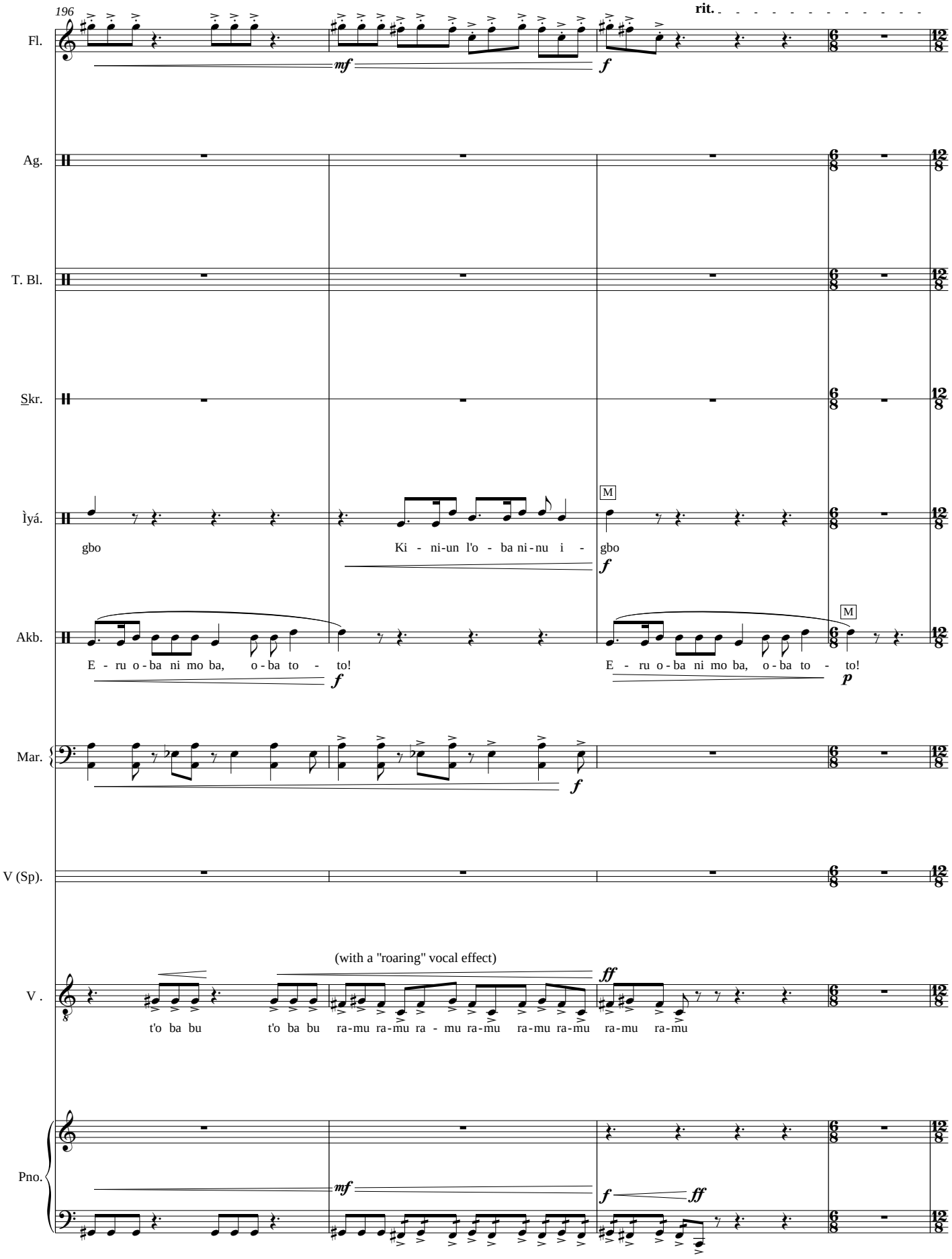

178
Fl.
ff
mf
gliss.
Ag.
2
2
2
T. Bl.
Skr.
Ìyá.
Akb.
Mar.
V (Sp).
V .
8
Pno.

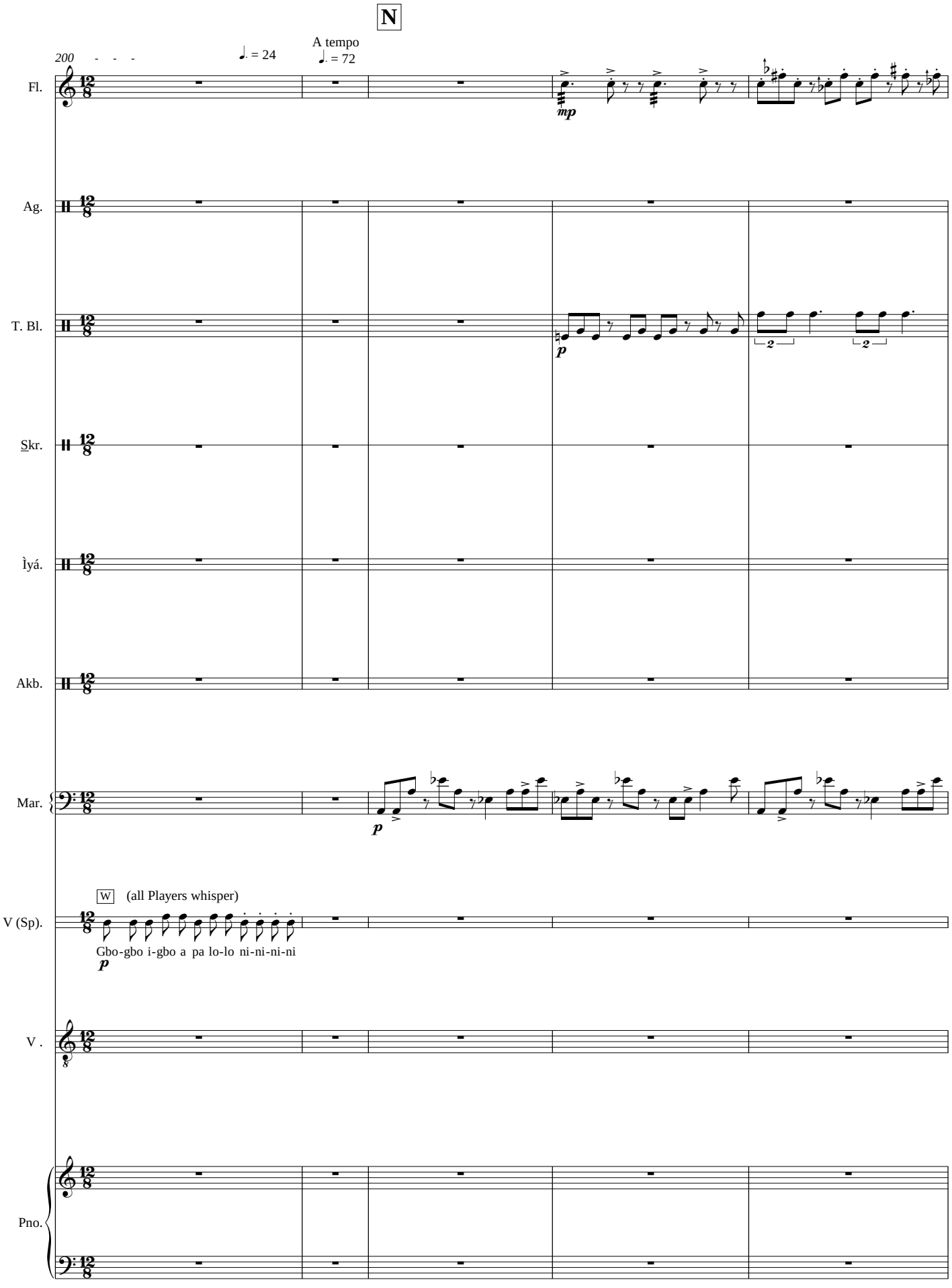

181
Fl.
Ag.
T. Bl.
Skr.
Ìyá.
Akb.
Mar.
f
V (Sp).
V .
8va
Pno.

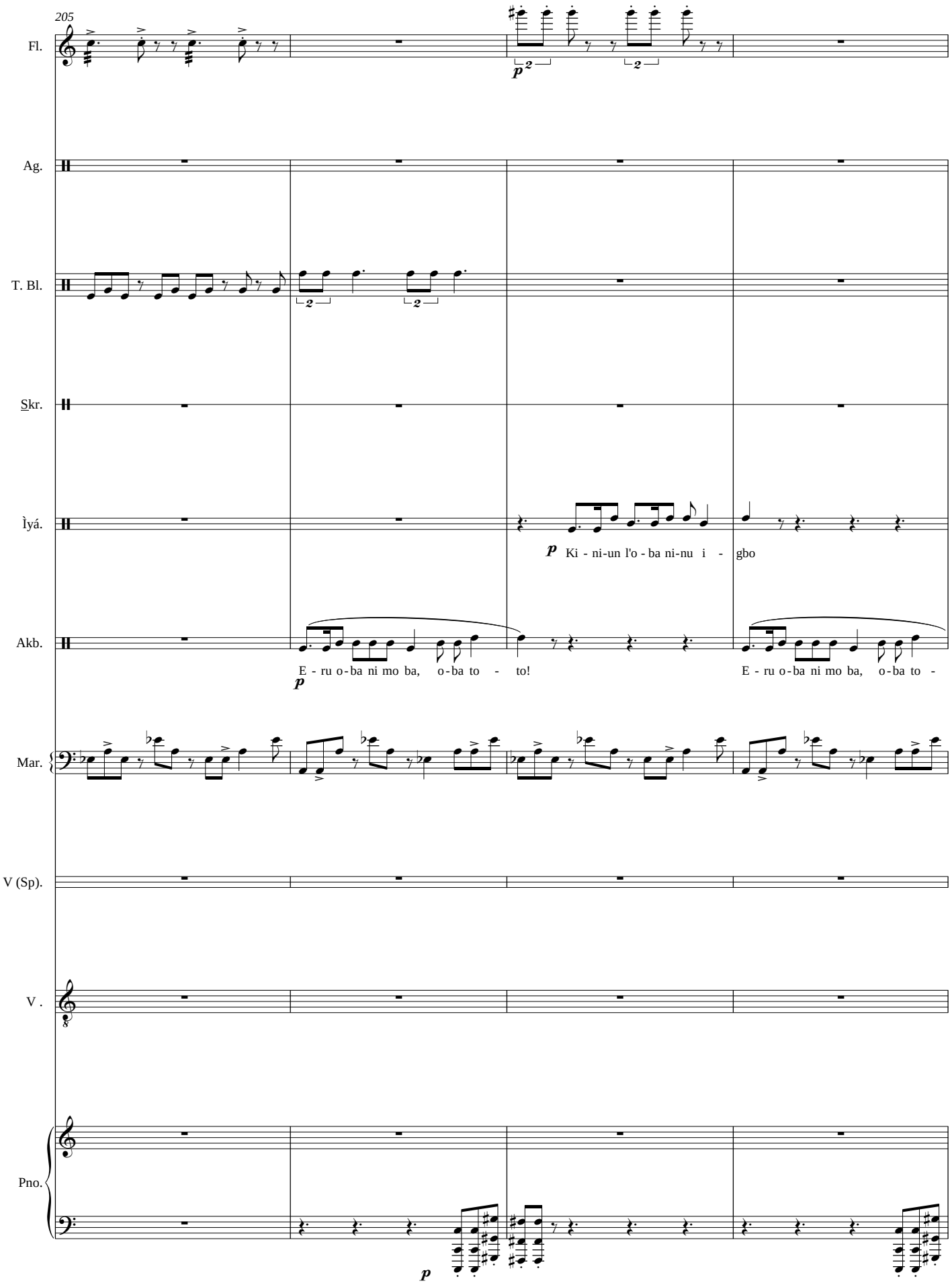

M
184
Fl.
Ag.
T. Bl.
Skr.
Ìyá.
Akb.
Mar.
V (Sp).
V .
Pno.
f
mp
p
Ki - ni-un l'o - ba ni-nu i -
E - ru o - ba ni mo ba, o - ba to - to!
8va
mp

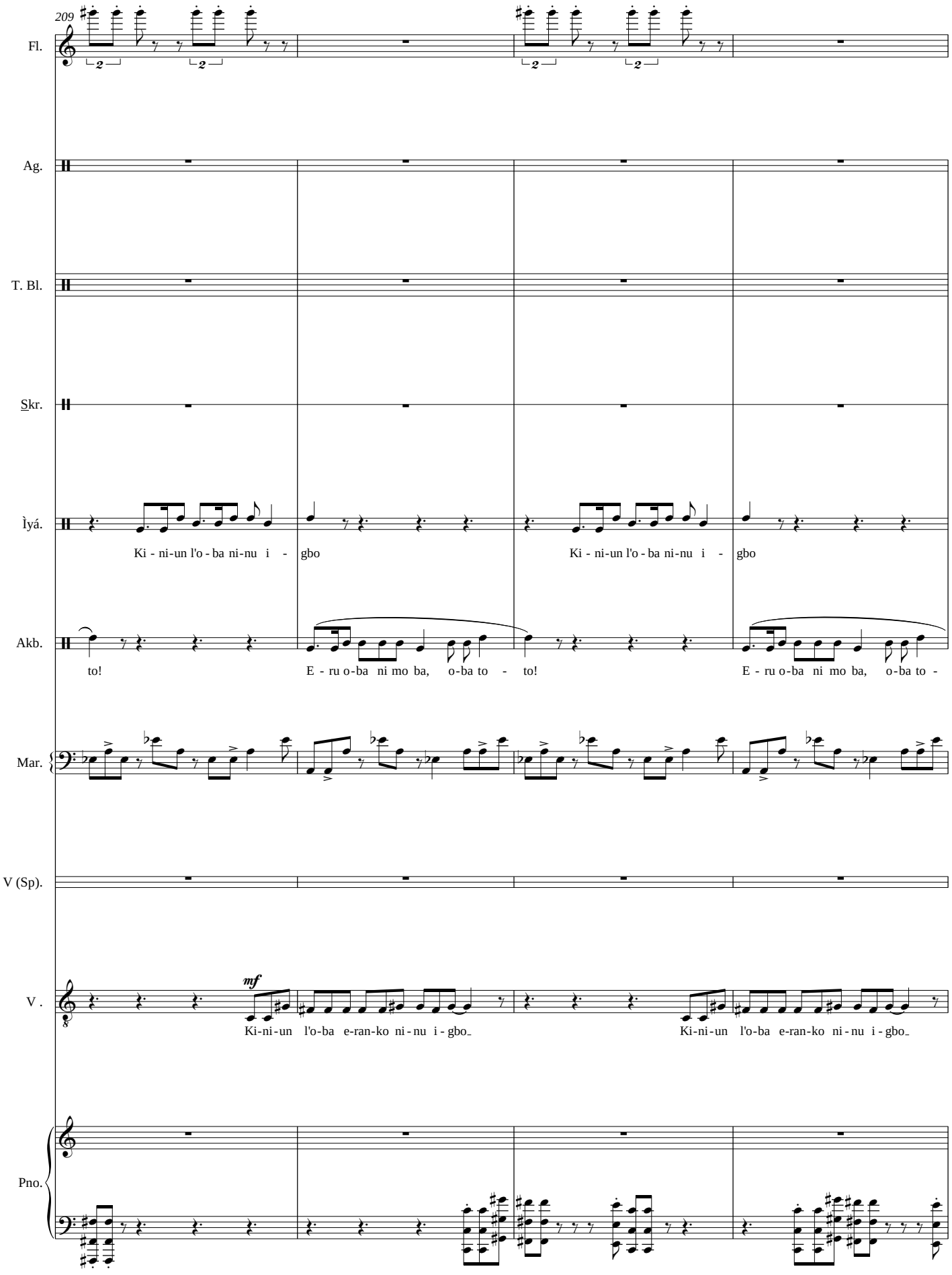

188
Fl.
Ag.
T. Bl.
Skr.
Ìyá.
gbo
Ki - ni-un l'o - ba ni-nu i -
gbo
Ki - ni-un l'o - ba ni-nu i -
Akb.
E - ru o-ba ni mo ba, o-ba to - to!
E - ru o-ba ni mo ba, o-ba to - to!
Mar.
V (Sp).
V .
mf
Ki-ni-un l'o-ba e-ran-ko ni - nu i - gbo_
Ki-ni-un
Pno.
mp
mp

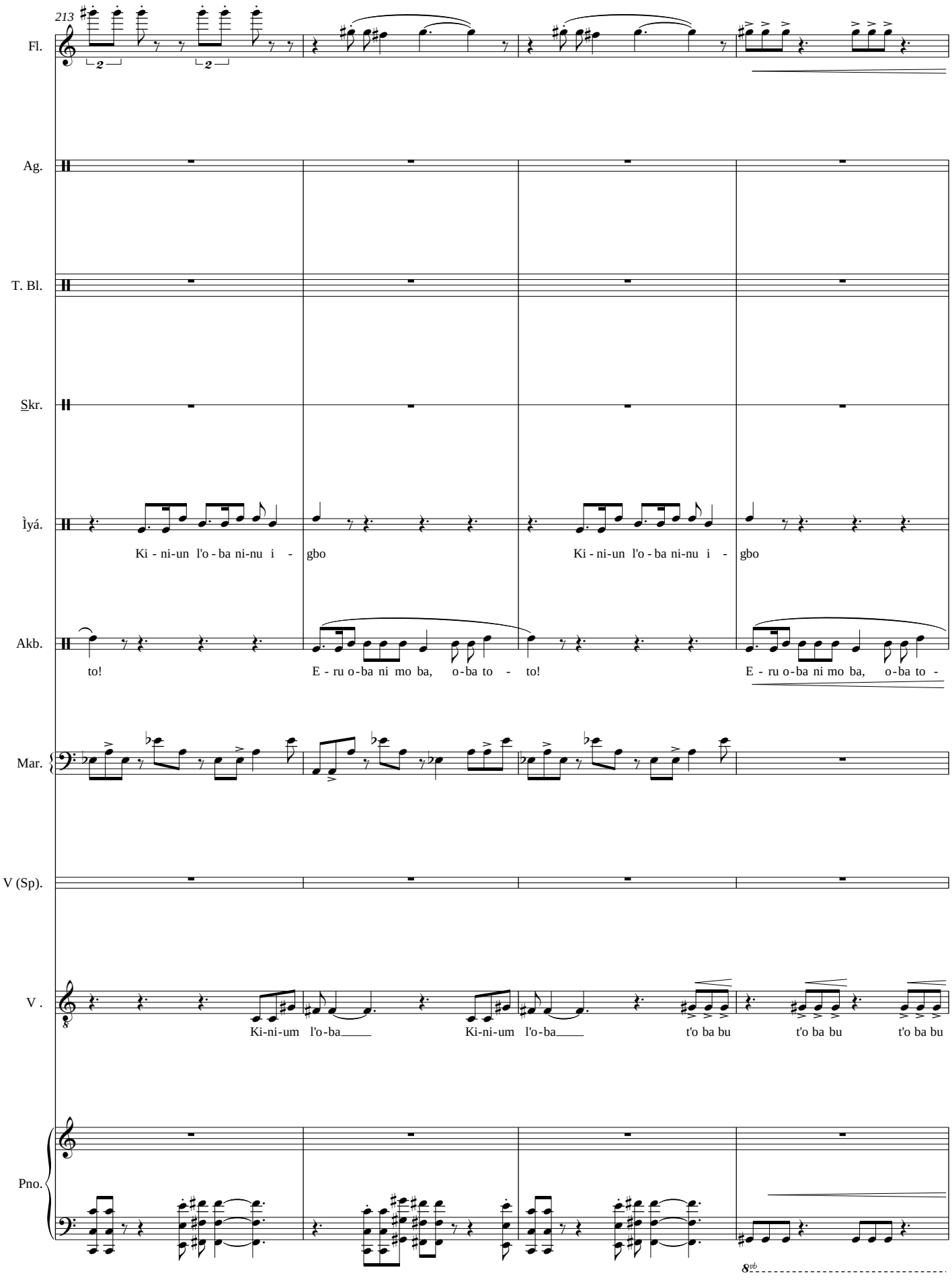

192
Fl.
Ag.
T. Bl.
Skr.
Ìyá.
gbo
Ki - ni-un l'o - ba ni nu i -
gbo
Ki - ni-un l'o - ba ni-nu i -
Akb.
E - ru o-ba ni mo ba, o-ba to - to!
E - ru o-ba ni mo ba, o-ba to - to!
Mar.
V (Sp).
V .
l'o-ba e-ran-ko ni - nu i - gbo_
Ki-ni-um l'o-ba____
Ki-ni-um l'o-ba____
t'o ba bu
Pno.

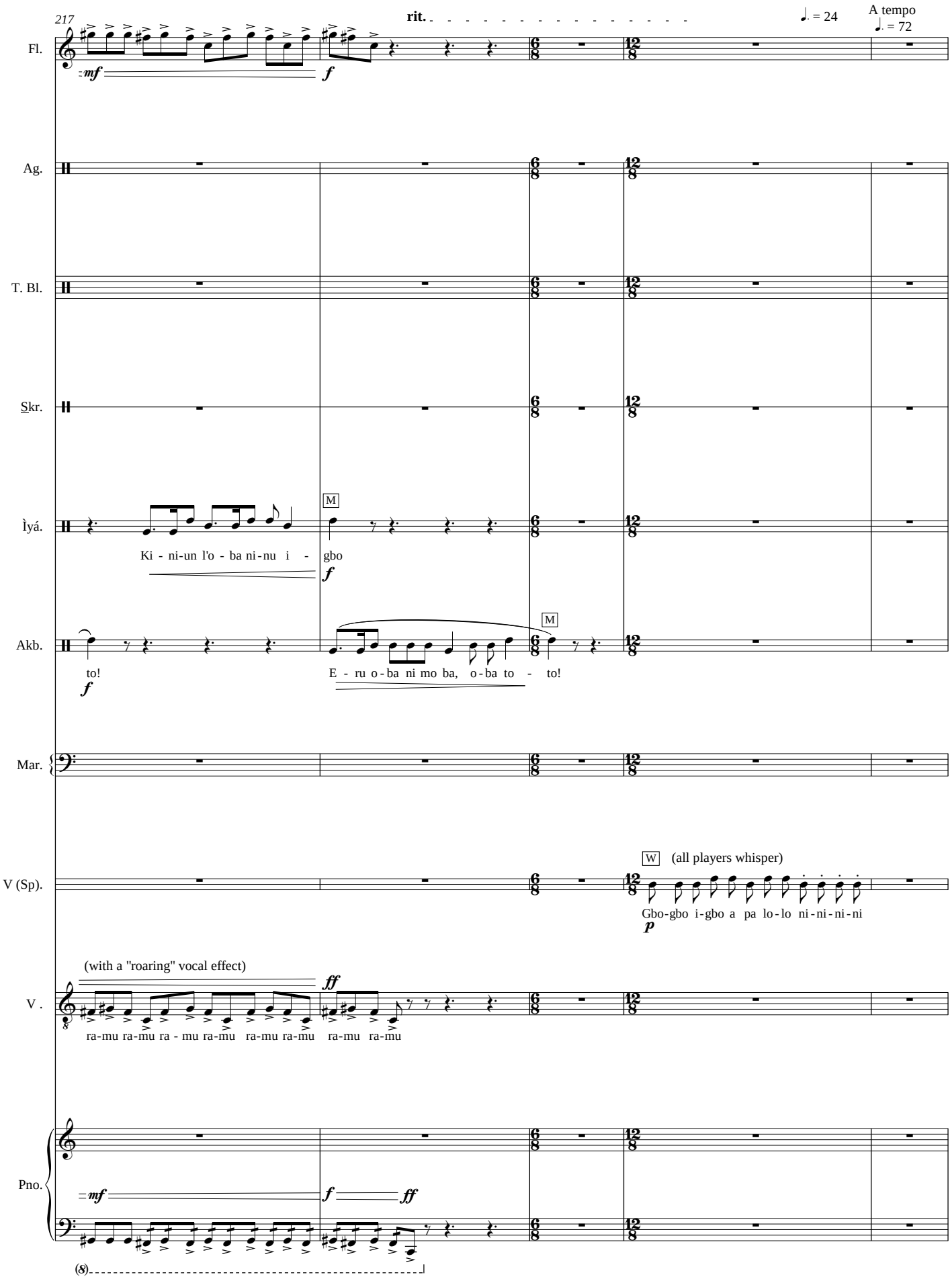

196
rit.
Fl.
mf
f
Ag.
T. Bl.
Skr.
Ìyá.
gbo
Ki - ni-un l'o - ba ni-nu i - gbo
f
M
Akb.
E - ru o-ba ni mo ba, o-ba to - to!
f
E - ru o-ba ni mo ba, o-ba to - to!
p
Mar.
f
V (Sp).
(with a "roaring" vocal effect)
V .
ff
t'o ba bu t'o ba bu ra-mu ra-mu ra - mu ra-mu ra-mu ra-mu ra-mu ra-mu
Pno.
mf
f
ff


N
200
♩. = 24
A tempo
♩. = 72
Fl.
mp
Ag.
T. Bl.
p
Skr.
Ìyá.
Akb.
Mar.
p
W (all Players whisper)
V (Sp).
Gbo-gbo i-gbo a pa lo-lo ni-ni-ni-ni
p
V .
Pno.


205
Fl.
Ag.
T. Bl.
Skr.
Ìyá.
Akb.
Mar.
V (Sp).
V .
Pno.
p
Ki - ni-un l'o - ba ni-nu i - gbo
E - ru o - ba ni mo ba, o - ba to - to!
E - ru o - ba ni mo ba, o - ba to -


209
Fl.
Ag.
T. Bl.
Skr.
Ìyá.
Ki - ni-un l'o - ba ni-nu i - gbo
Ki - ni-un l'o - ba ni-nu i - gbo
Akb.
to!
E - ru o-ba ni mo ba, o-ba to - to!
E - ru o-ba ni mo ba, o-ba to -
Mar.
V (Sp).
V .
mf
Ki-ni-un l'o-ba e-ran-ko ni - nu i - gbo_
Ki-ni-un l'o-ba e-ran-ko ni - nu i - gbo_
Pno.


213
Fl.
Ag.
T. Bl.
Skr.
Ìyá.
Ki - ni-un l'o - ba ni-nu i - gbo
Ki - ni-un l'o - ba ni-nu i - gbo
Akb.
to!
E - ru o-ba ni mo ba, o-ba to - to!
E - ru o-ba ni mo ba, o-ba to -
Mar.
V (Sp).
V .
Ki-ni-um l'o-ba
Ki-ni-um l'o-ba
t'o ba bu
t'o ba bu
t'o ba bu
Pno.


217
rit.
♩. = 24
A tempo
♩. = 72
Fl.
mf
f
Ag.
T. Bl.
Skr.
Ìyá.
M
Ki - ni-un l'o - ba ni-nu i - gbo
f
Akb.
M
to!
f
E - ru o - ba ni mo ba, o - ba to - to!
Mar.
W (all players whisper)
V (Sp).
Gbo-gbo i-gbo a pa lo-lo ni-ni-ni-ni
p
(with a "roaring" vocal effect)
V .
ff
ra-mu ra-mu ra - mu ra-mu ra-mu ra-mu ra-mu ra-mu
Pno.
mf
f
ff
(8)

O

222

Fl.

Ag.

T. Bl.

Skr.

Ìyá.

Akb.

Mar.

V (Sp).

V .

Pno.

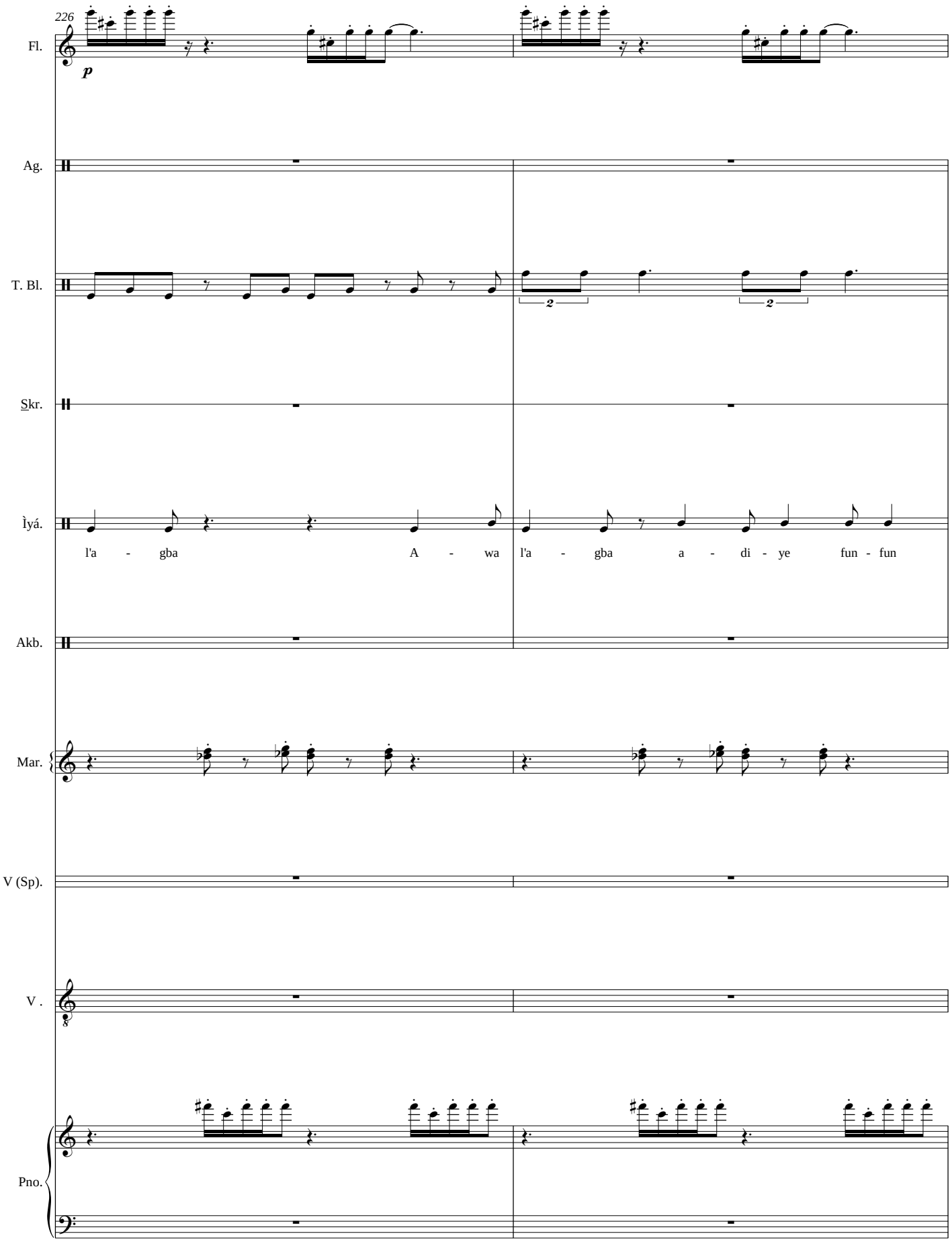
p

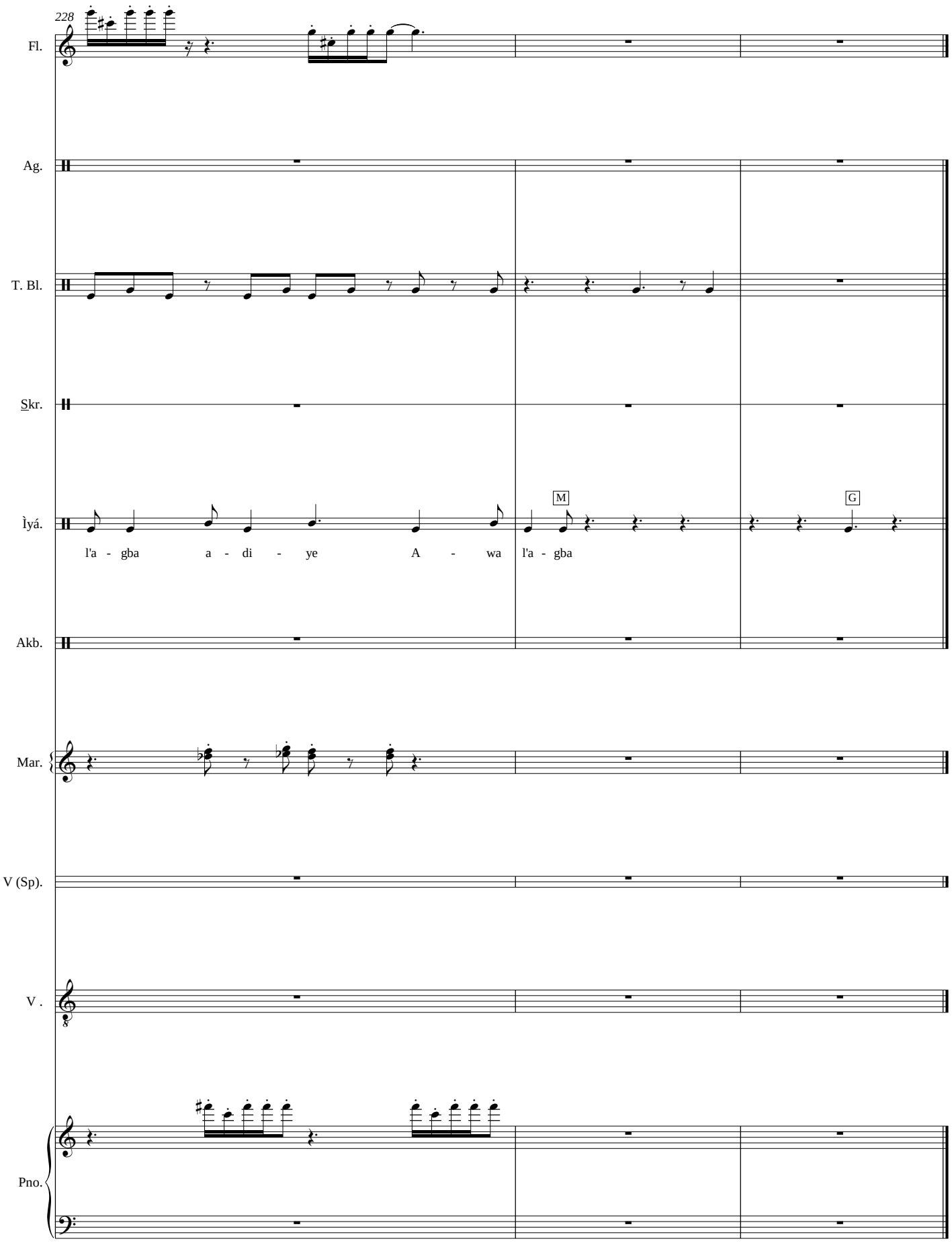
mp

A - wa

*(staccato = dead stroking)

*(staccato = dead stroking)


226
Fl.
p
Ag.
T. Bl.
2
2
Skr.
Ìyá.
l'a - gba A - wa l'a - gba a - di - ye fun - fun
Akb.
Mar.
V (Sp).
V .
Pno.


228
Fl.
Ag.
T. Bl.
Skr.
Ìyá.
M
G
l'a - gba a - di - ye A - wa l'a - gba
Akb.
Mar.
V (Sp).
V .
Pno.